

**NELSON GRANITE LIMITED**

2002

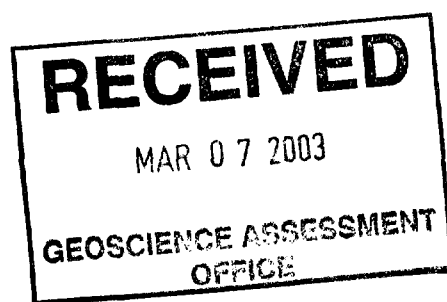
**GROUND PENETRATING RADAR  
STRIPPING AND BULK SAMPLING PROGRAM  
WHITEDOG CLAIMS**

Goshawk Lake Area

NTS: 52L/2NW

Kenora Mining Division

2 25121



March 5, 2003

G.R. Zebruck

Nelson Granite



52L02NW2002 2.25121

GOSHAWK LAKE

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### ACKNOWLEDGEMENTS

Some of the maps presented in this document were obtained from sources on the internet. The location map of the Whitedog Prospect was downloaded from Expedia. The claim map was downloaded from the Claim Maps III site of the Ministry of Northern Development and Mines. Kenora Resident Geologist staff helped with the identification of minerals and description of the stone. Other information such as machine hours and expenses were obtained from company internal files.

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## **Introduction**

The Whitedog Prospect was discovered during the summer of 2000 as a direct result of an exploration program, which concentrated on the area of the Tetu Lake Batholith. The work was part of Nelson Granites on-going commitment to explore for new granite deposits in Northwestern Ontario. Helicopter reconnaissance followed by ground prospecting using aerial photography to direct exploration was used to find prospective targets.

Three claims were staked initially and two more were added in the winter of 2001-2002.

## **Location and Access**

The Whitedog Prospect is located in the Kenora Mining Division, Goshawk Lake Area, Map G-2620 UTM: 370000 mE Zone15  
5559000 mN

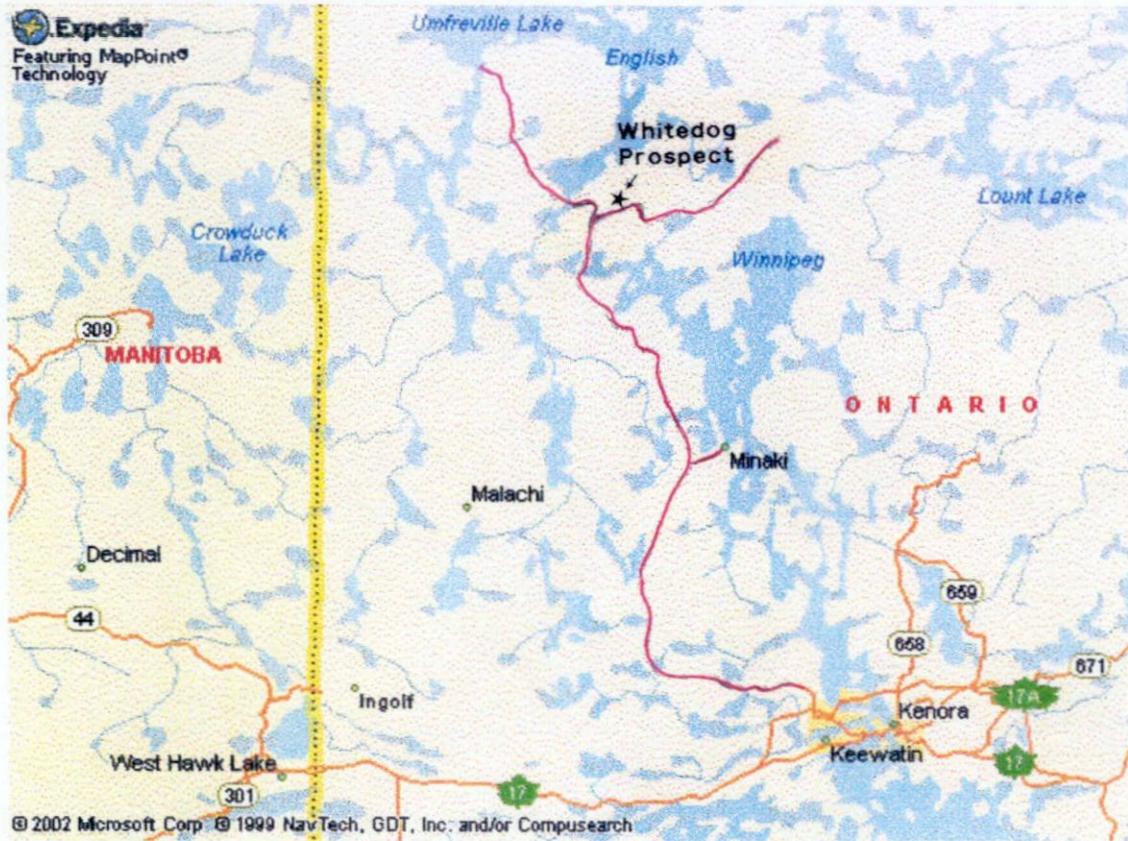
There is good road access to the property via Highway 666 Minaki Road, and Highway 524 to the Whitedog Indian Reserve. Both of these roads are hard surfaced. The Sand Lake Road intersects Highway 525 approximately 4.5 kilometres north of the Whitedog Hydro Dam on the Winnipeg River. The property is located approximately 2 kilometres east of the Hwy. 525- Sand Lake Road junction, and is on the north side of the road.

The Sand Lake Road is a gravel logging road, which runs predominately east west and connects Highway 525 to the English River Road

## **Topography and Vegetation**

The topography of the area is typical Northwestern Ontario terrain with high granite hills flanked by swamps, lakes and other drainages. The Whitedog Property is a horseshoe shaped granite hill surrounding a spruce-sphagnum swamp 15 hectares in size. Elevation at its highest point is about 395 metres above sea level. The unnamed lake to the north is at 340 metres so that there is a steep elevation difference of 50 metres.

Over 50% of the area of the claims is granite bedrock having small patches of shallow overburden supporting stunted jackpine and reindeer moss scattered among large



**Fig. 1 Location Map Whitedog Prospect**

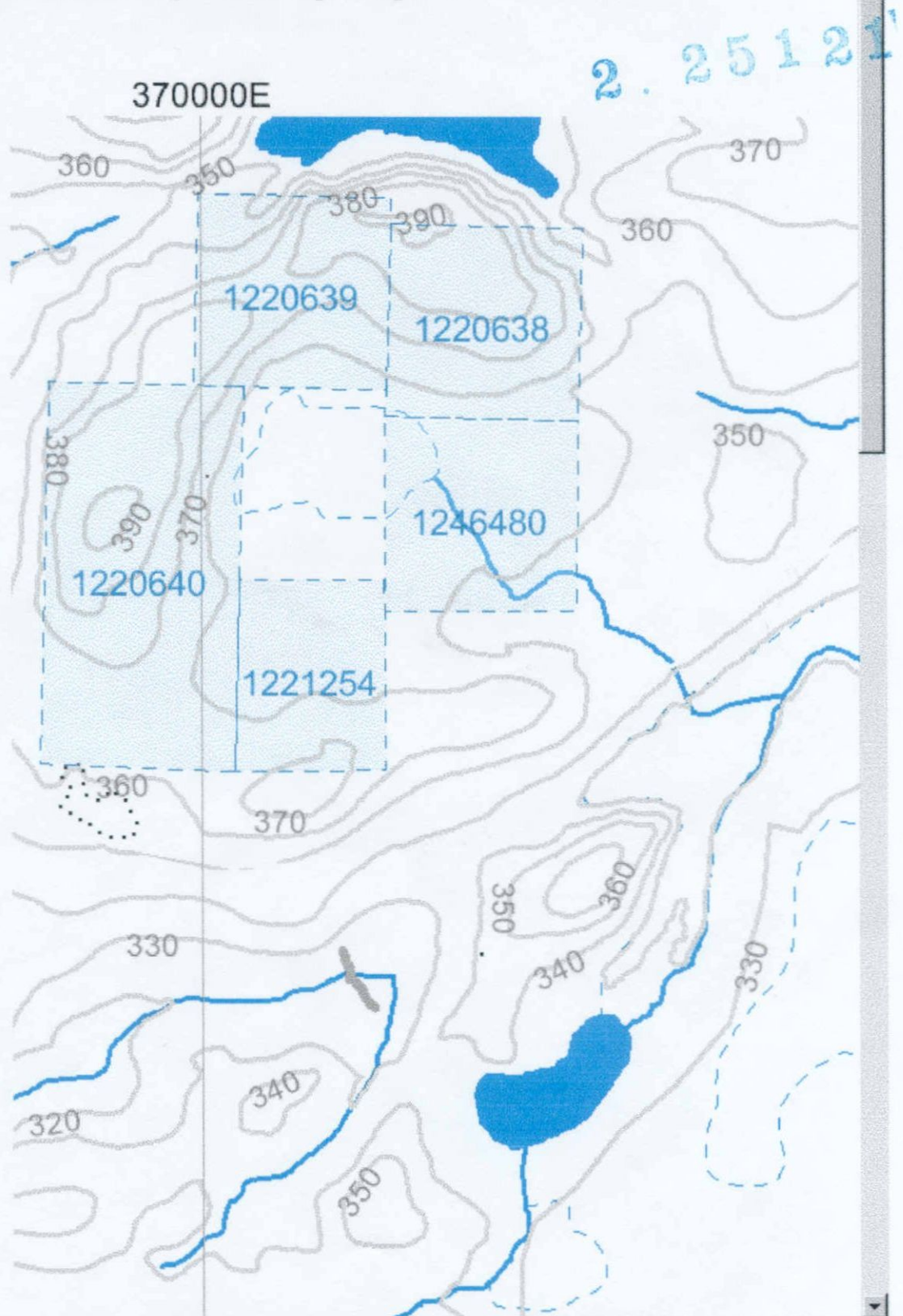
exposures of bare rock. The flanks of the hills are covered with typical boreal tree species birch, poplar, pine and spruce and lesser vegetation.

### Geology

The area was mapped by Breaks et al. (1975e, 1978) at a reconnaissance scale and was included in a compilation by Thurston and Bartlett (1981). Type mapping by Breaks indicates the area around the claims and to the west to be massive equigranular quartz monzonite.

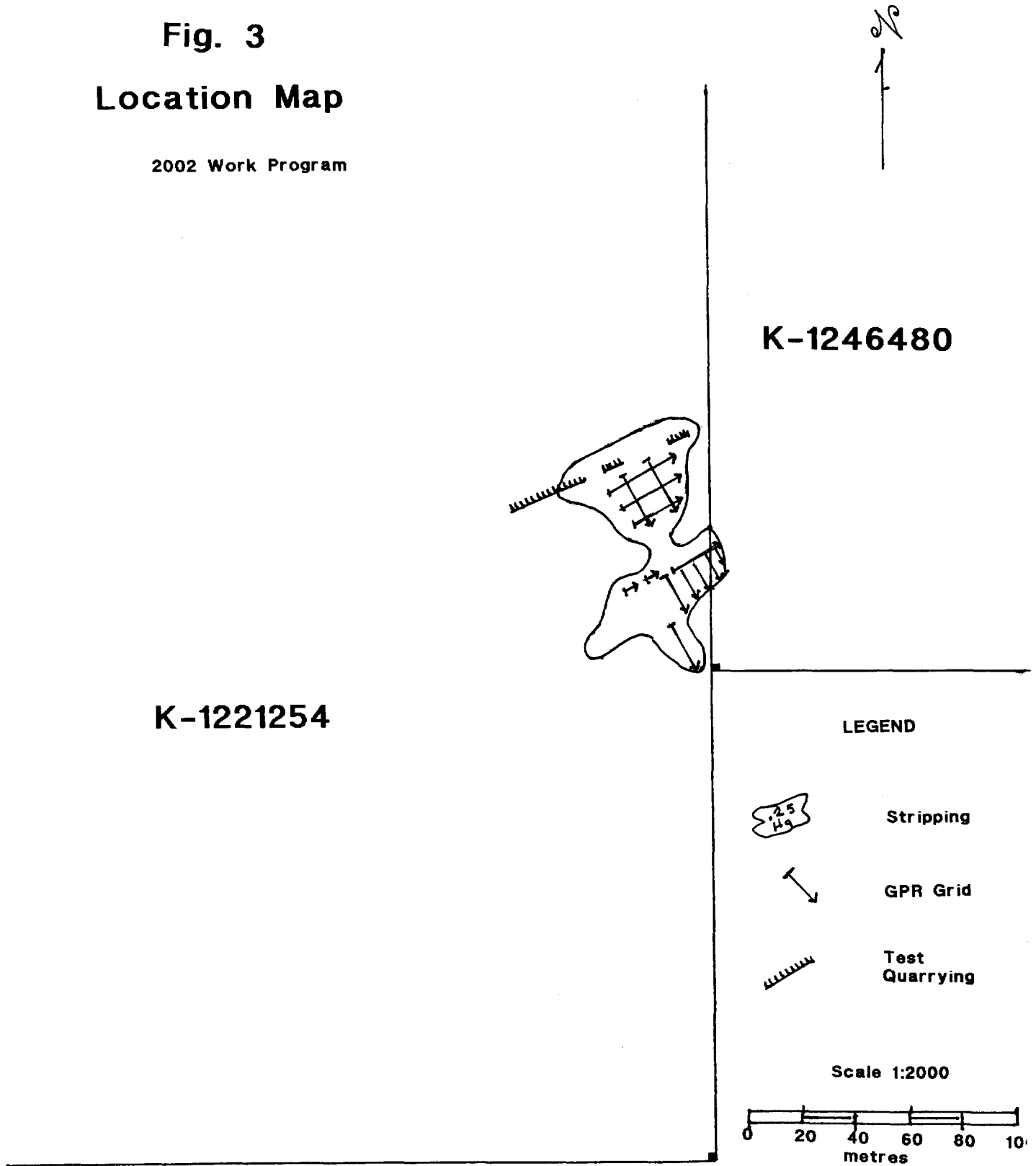
Two colours of stone are found on the property, medium grained pinkish red and medium grained reddish brown. Small samples of both colours were taken, sawn and polished in order to determine what they would look like. The pinkish red stone was not as attractive when it was polished compared to the rough sample. The reddish brown stone on the other hand looked very attractive with a rich colour.



**Fig. 2 Claim Map Whitedog Prospect**

**Fig. 3**  
**Location Map**

2002 Work Program





The reddish brown stone outcropped at two locations on the property on either side of the large swamp. The formation was very poor with many close-spaced sub-horizontal and near vertical fractures making the deposit appear marginal at best. Other than cracks the stone was very uniform in grain size, colour and generally free from other defects.

A sample of the material was taken to the resident geologists office of the Ministry of Northern Development and Mines for assistance in determining mineral composition and rock type. The composition of the rock as determined by visual inspection was quartz 10%, potassium feldspar 40-45%, plagioclase feldspar 15-20% and mafic minerals (biotite) 25-30%. The stone is described as a red, medium-grained, hematitized quartz syenite with 5% phenocrysts of potassium feldspar.

### **Previous Work**

A 40-foot vertical diamond drill hole was put down on the formation in October 2001. An inspection of the core confirmed that the uniform colour, grain size and freedom from defects continued to depth. Some long sections of unbroken core provided some hope that blocks of an economic size could be obtained from the property. No other work has been done on the property.

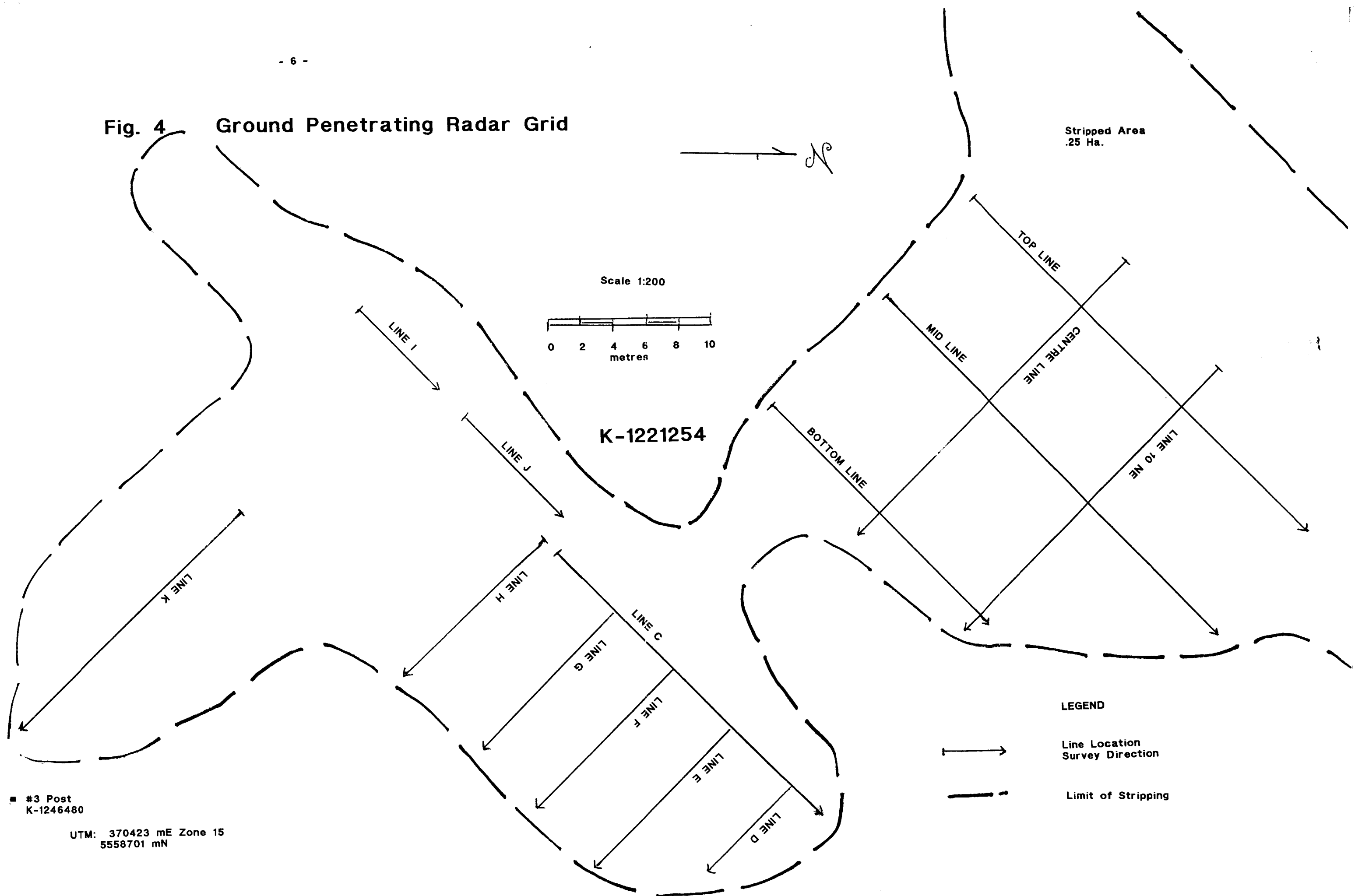
### **The 2002 Work Program**

In August of 2002 the company applied for and received permission to take a bulk sample from the deposit. Bulk sampling or test quarrying was necessary to determine the nature and extent of defects in the stone, to determine the waste to product ratio, to provide material for sawing and polishing tests, and to make some tiles and monuments for market tests. A program of stripping, ground penetrating radar surveys and test quarrying was completed in the fall of 2002.

### **Stripping**

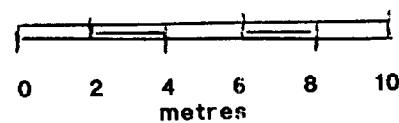
Stripping was carried out between August 18<sup>th</sup> and August 31<sup>st</sup> over an area of .25 hectares on mining claims K-1221254 and K-1246480 using a 215 Cat. Backhoe. This area had 2 sets of ledges striking 45 degrees facing northwest. These ledges were 32 metres apart and parallel. Most of the area had a shallow covering of overburden

Fig. 4 Ground Penetrating Radar Grid



Stripped Area  
.25 Ha.

Scale 1:200



K-1221254

TOP LINE

MID LINE

CENTRE LINE

BOTTOM LINE

LINE 10 NE

LINE K

LINE J

LINE H

LINE C

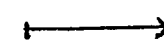
LINE G

LINE F

LINE E

LINE D

LEGEND



Line Location  
Survey Direction



Limit of Stripping

#3 Post  
K-1246480

UTM: 370423 mE Zone 15  
5558701 mN

averaging 1 metre deep except for the ledge fronts where up to 3 metres of material had to be excavated. This location appeared to be the best place to test quarry because the colour of the stone was good, the grain size was uniform and vertical joint spacing was reasonably wide (2 to 7 metres). When the ledge fronts were cleaned out it was found that there was a lot of close spaced, often discontinuous sub-horizontal jointing. This was a limiting factor in the recovery of large sized blocks and significantly increased the waste to product ratio.

### **Ground Penetrating Radar Survey**

Ground penetrating radar surveys were conducted on August 20<sup>th</sup> and 26<sup>th</sup> over the stripped area to learn more about the distribution of fractures and find if there existed areas within the deposit that were fracture free. Two grids were marked out on the stripped surface behind each of the ledge faces. Figure 4 shows an outline of the stripped area and the location of the grid lines as well as the direction of the survey along the lines.

The radar system used was a Sensors & Software pulseEKKO 1000 ground penetrating radar system. The technical specifications of the unit are appended.

Ground penetrating radar is similar in principal to seismic reflection and sonar techniques. The unit produces a pulse of high frequency electromagnetic energy that is transmitted into the rock. Reflected signals are detected, amplified at the receiver and are digitized and transferred to a field computer. Pulses are transmitted at regular distance intervals along the survey line and the reflected signals produce a profile of the reflectors encountered along that line.

For this survey we used a 450 MHz antennae with a separation of .25 metres between transmitter and receiver. Step size (distance between pulses) was 5 centimetres measured and triggered using an odometer wheel.

The time window setting determines how long (and therefore how deep) the radar system will probe the subsurface. Velocity of the radar wave varies through different materials. A good average for granite is .13 metres/(ns) and this value was used for the purposes of this survey. All survey lines except for Line I and Line J had a time window

setting of 80 (ns) and therefore the depth probed was 5.2 metres. Lines I & J had a time window setting of 50 (ns) and for these two lines the depth probed was 3.2metres.

### Presentation of Results

Radar reflection sections were plotted for each of the survey lines. All profile data were processed with similar parameters except for time window in the case of lines I and J, and presented with a time varying gain. Distance along grid lines and depth is presented in metres. Specific details of the data processing for each section are presented prior to each data set. The final plotted results are appended. A small arrow with the depth in metres from surface has been added to indicate the major joints while discontinuous fractures are indicated by a small arrow only. It must be remembered when viewing the data that the computer plots the surface as flat and the conductors at a certain distance from this flat surface. In reality the surface is not flat, so joints that appear curved may in fact be flat if the topography is adjusted to its correct elevation. The software does provide for this correction as well as plotting the results in 3 D. We are satisfied however to use the data as is and mark the depth to joints on the rock for the use of the quarry crew.

### Observations

The northern grid is composed of five intersecting survey lines named top line, mid line, bottom line, centre line and line 10 NW. The profiles reveal that there are two main sub horizontal joints. In the case of the top line they are at a depth of 2.3 and 4.0 metres below surface at station 15+00. These two main joints can be found on all of the five lines. The upper one is more erratic often stepped and discontinuous in places. The lower joint is more open and continuous and looks to be the best bed to quarry to. There are many secondary fractures, some open and others thin and discontinuous. Many are stepped and therefore difficult to quarry. The profiles clearly show the multitude of parallel sub horizontal fractures that are close spaced making the extraction of even small sized blocks difficult. There is no doubt that the waste ratio will be very high in this deposit. Having said this there are some areas that may yield some small blocks. They are:

- top line    -from surface to 1 metre depth at 10+00 to 15+00 and 22+00 to 27+00
- from 3 metres to 4 metres depth at 8+00 to 23+00
- mid line    -from surface to 1.5 metres at 14+00 to 21+00

- bottom line -from 1 to 2 metres depth at 9+00 to 13+00
- from 3 to 4 metres depth at 9+00 to 19+00
- centre line -from surface to 1 metre depth from 0+00 to 11+00
- line 10NW -from surface to 1 metre depth from 5+00 to 15+00
- from 2.5 to 3.5 metres depth at 0+00 to 7+00

The southern radar grid is made up of nine lines labelled C to K. There are many fractures and joints, some open and others tight and discontinuous. There appears to be little opportunity to quarry anything here. The only area that may give blocks is the ledge front back 3 to 4 metres to the southeast. This can be seen on the profile of Line C from surface down to 1,5 metres along most of its length.

### Conclusions

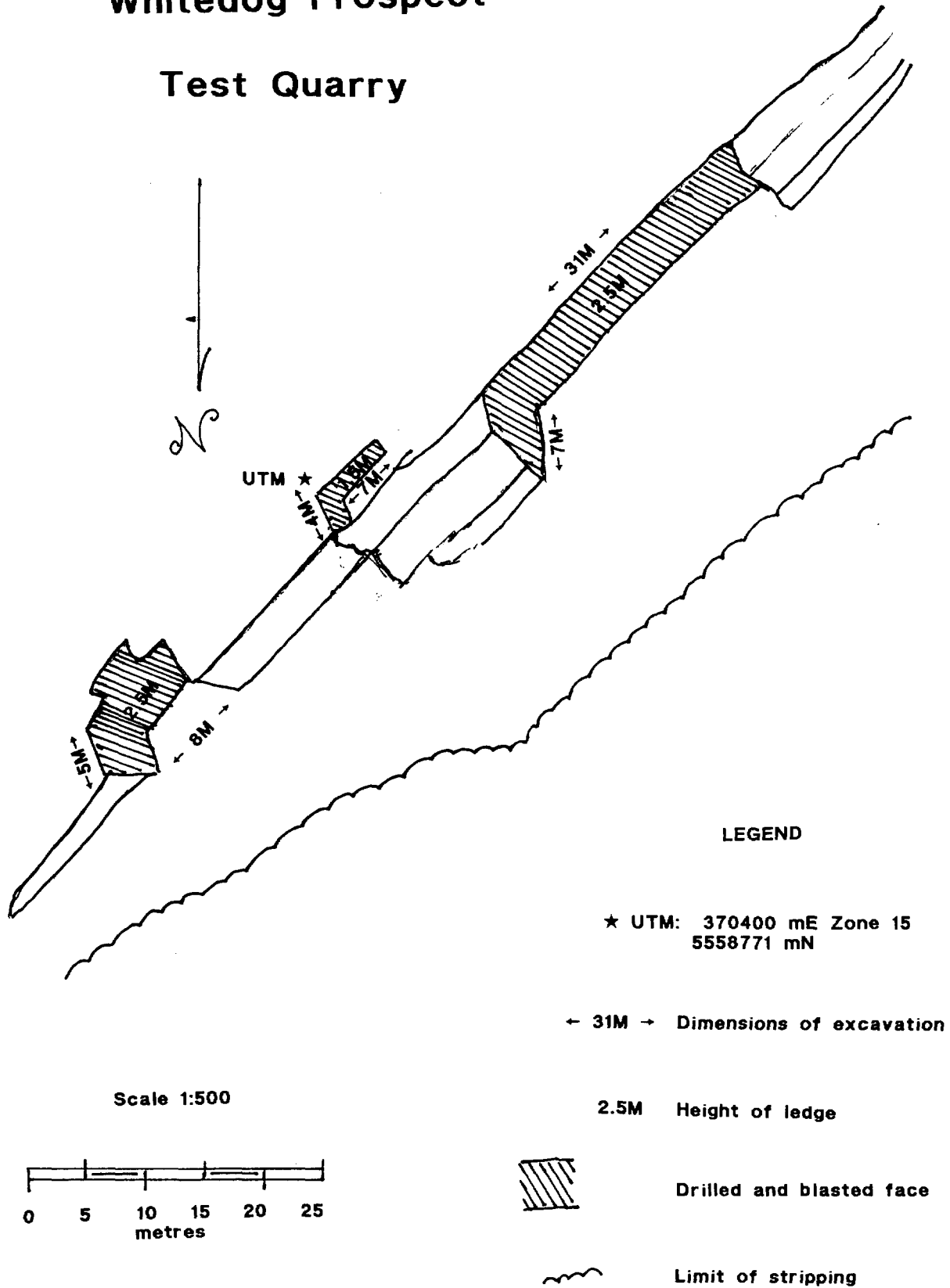
The radar survey shows an abundance of close spaced horizontal joints making the extraction of even small blocks a difficult prospect. The waste to product ratio is likely to be greater than 90%. The north grid is underlain by a major joint about 4 metres from surface that is open and can be used to quarry down to. The north grid area has some potential for small blocks while the south grid area looks very poor.

### Test Quarrying

Test quarrying took place between September 1<sup>st</sup> and October 11<sup>th</sup> using a production crew of four men and standard quarry equipment. The equipment included a 555 Dresser front-end loader, Tamrock 100 and Tammrock 300 hydraulic rock drills, and a Lutz channelling torch. Explosives used include K-pipe explosives, 50 grain detonating cord and safety fuse detonators. A variety of rock working tools were used including wedges and shims for splitting stone.

Quarrying began along the north ledge face but there were so many fractures that no blocks were obtained. The test quarrying encountered a set of fractures not picked up by the radar. These were hairline fractures that were discontinuous and random in orientation. The more open joints were often stepped or discontinuous which made following a quarry bed extremely difficult. L-Blasting was attempted but excessive losses in drill steel was encountered during the drilling of the horizontal holes. Drill bits and

**Fig. 5**  
**Whitedog Prospect**  
**Test Quarry**





**Fig. 6**

**Test Quarry Site**

**Whitedog Property**





**Fig. 7** Ledge face, sub-vertical joints  
strike 45° spaced 2-5 metres



Horizontal joints are close spaced  
and discontinuous



steel jammed in the many horizontal joints. When the L-Blast was set off the rock disintegrated into a pile of cobble.

Test quarrying was moved along the north ledge to the northwest out of the stripped area. Here the formation looked better and during the final week 20 small blocks were excavated. These blocks were shipped to our plant at Vermilion Bay for sawing and polishing tests and for trans shipment to potential customers.

### **Sawing, Polishing and Market Testing**

Two blocks were sawn, polished and made into monuments and bases at our plant in Vermilion Bay, Ontario. The stone sawed easily with low diamond consumption but polishing was a little more difficult. The material split and worked very well with hand tools and was a very attractive split faced stone. When polished it was a rich red brown colour of premium quality in the monument market. The stone was introduced at a monument dealers- producers convention in Nashville Tennessee and was received very well. One block was sent to a tile producer in British Columbia for production of tile samples. These samples were received and are very attractive. There are indications that the material can be marketed for tiles.

More sawing polishing and market testing needs to be done and will be done as time becomes available at our plant.

### **Conclusions**

The material is a premium quality stone but the formation is marginal. The deposit has many close spaced horizontal fractures but otherwise is generally free from defects. Small blocks suitable for the manufacture of monuments or tiles have been obtained from the property. More exploration work is required to prove whether a product can be economically produced from this formation.

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## **APPENDIX-A pulseEKKO 1000 Specifications**



## pulseEKKO 1000A Features & Benefits

The **pulseEKKO 1000A** addresses high resolution subsurface mapping applications. The pulseEKKO 1000A is optimized for use in urban settings and near man-made structures. This system operates over a frequency range of 110 MHz to 1200 MHz. Applications for use include utility detection, non-destructive testing, forensics, archeology and road and pavement surveys.

This system offers many features and benefits including:

### Features:

- fully digital timing control & data acquisition (10 ps to 32000  $\mu$ s)
- interchangeable shielded antennas with frequencies ranging from 110 MHz to 1200 MHz
- CMP acquisition with antenna separations to 60m
- reduced receiver noise
- remote triggering
- integrated software
- data display as survey is conducted
- seismic stable processing
- PC control
- bistatic configuration
- ergonomic antenna carts
- odometer control
- lightweight, modular, compact design
- 12V battery operation
- backwards compatibility with all pulseEKKO 1000 systems

### Benefits:

- high quality repeatable results
- adaptable to many shallow mapping applications
- survey optimization and depth control
- improved data quality and timing depth
- permits acquisition from a variety of control sources
- fast, high quality data presentation
- instant assessment of subsurface conditions
- exact definition of subtle features
- simple, user-friendly operation on any IBM compatible PC
- enables CMP & imaging tomography surveys
- spend time getting results and not fighting logistics
- gives quick, reliable positioning and allows for user-definable station spacing
- easy to store, ship and use in tight places
- operate anywhere, without concern for power supply
- extends customer investment longevity



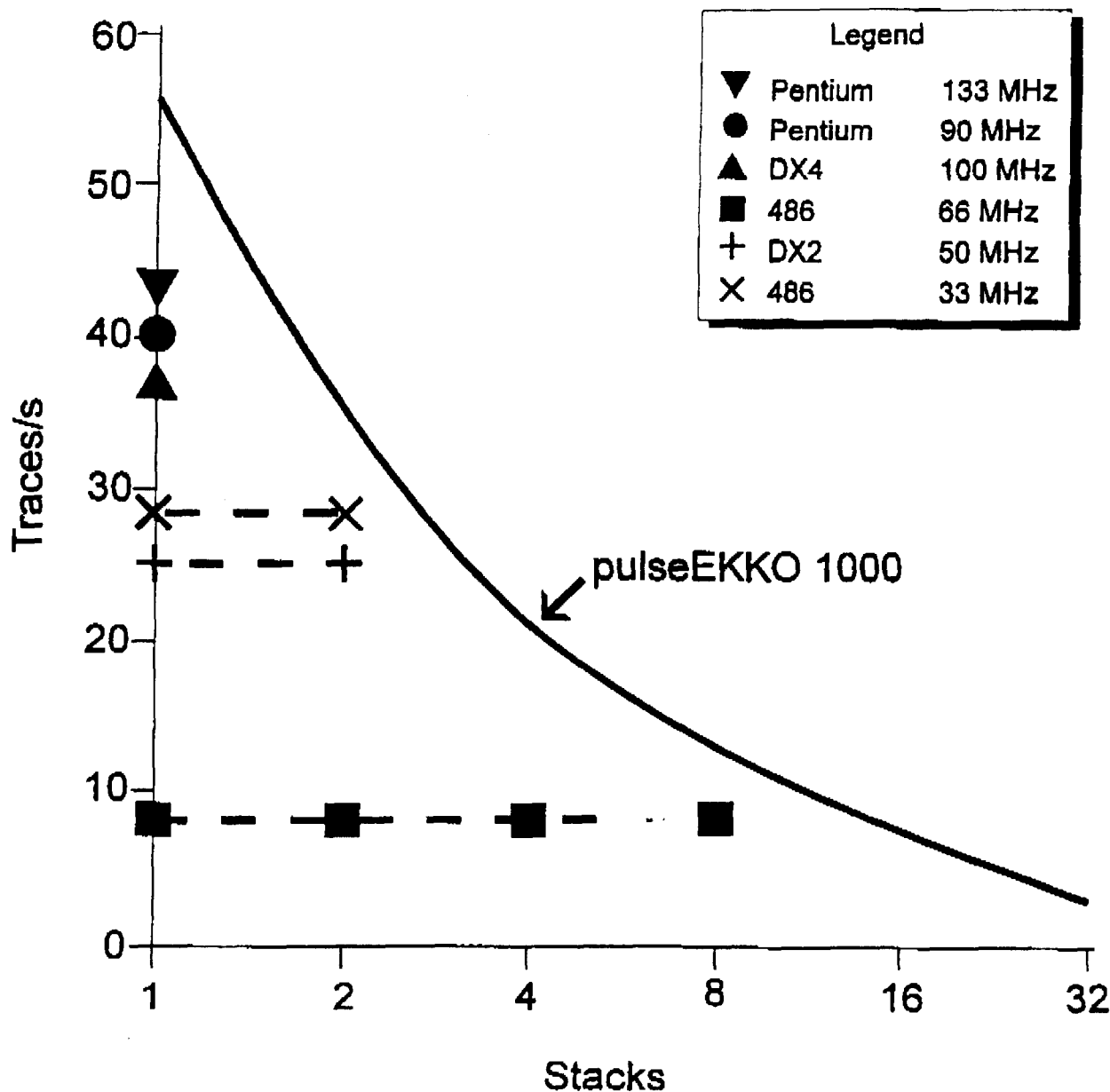


## pulseEKKO 1000

### Acquisition Rates

The pulseEKKO 1000 can generate a scan continuously by programming the computer to sequence through continuously increasing time steps and averaging (if needed) at each time point. The result is a scan rate controlled by the speed of the computer.

Number of traces per second that can be collected with the pulseEKKO™ 1000 system, shown with the solid line, using different computer processors (200 pts/trace) are displayed in the figure below.





## **pulseEKKO 100A & pulseEKKO 1000A**

At Sensors & Software Inc. we continually strive to improve our GPR system performance by investing in product development. Our R & D program has substantially enhanced the pulseEKKO 100 and pulseEKKO 1000 systems, resulting in the designation of new systems as pulseEKKO 100A and pulseEKKO 1000A.

### **pulseEKKO 100A**

- Enhanced digital time base
  - minimum sampling interval = 10 ps (80 times smaller)
  - maximum time window = 32  $\mu$ s (16 times larger)
- Enhanced fiber optics drive
  - allows up to 80 m with standard plastic cable
  - enables cable use to 1000 m with low cost glass cable
- Availability of plug compatible glass cable for unique long cable applications

### **pulseEKKO 1000A**

- Enhanced digital time base
  - minimum sampling interval = 10 ps (10 times smaller)
  - maximum time window = 32  $\mu$ s (160 times larger)
- Enhanced cable drives for improved timing stability
- new receiver technology reduces receiver noise

Existing owners can upgrade their pulseEKKO 100 and pulseEKKO 1000 systems through our upgrade program.



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# pulseEKKO™ 1000 COMPONENT GUIDE

## BASE SYSTEM

The pulseEKKO 1000 system operates over a frequency range from 110 MHz to 1400 MHz. The base system is configured with a centre operating frequency of 450 MHz. In order to operate the system, the user must have an IBM compatible PC computer operating under MS DOS version 3.3 or higher and a 12V power source. The computer must have an RS232 port for data transfer, a minimum of CGA graphics for data display and a disk drive for data storage.

The base system comes complete with the items listed below. Optional items for the pulseEKKO 1000 system are then presented.

**pulseEKKO 1000 Control Unit:** is the heart of the radar system and operates from a 12V DC power source. It controls the digital processing and the digital time sequencing of the transmitter and receiver units and also provides power to these units. It also manages communications with the controlling IBM compatible PC. Front panel connections are available for external odometer wheels, control switches such as the Auxiliary Beeper and Remote Trigger Unit, and high speed data transfer.

**pulseEKKO 1000 Transmitter Module:** is a self-contained electronics unit which receives its power from the pulseEKKO 1000 control unit. On command from the pulseEKKO 1000 control unit the transmitter generates a 200 volt pulse which drives onto an antenna. A light on this unit indicates when data are being collected. A port is available on this unit to initiate data collection either with a manual trigger (see Auxiliary Beeper and Remote Trigger Unit) or from an external odometer or to enter a fid marker. An identical port is available on the console.

**pulseEKKO 1000 Receiver Module:** plugs into the pulseEKKO 1000 control unit and receives both its power and timing acquisition signals from the control unit. A light on this unit indicates data are being collected. The receiver module digitizes the incoming radar signals and transmits the digital data back to the control unit. A port is available to connect an Auxiliary Beeper.

**450 MHz Antennas:** are shielded and come complete with a frame kit which will fix the antenna separation at 25 cm. In addition the antennas can be mounted independently to do CMP, transillumination and multi-fold surveys using the Bi-Static Antenna Frame Kit. The centre frequency is nominally 450 MHz with an approximate bandwidth of 450 MHz.

**Bi-Static Antenna Frame Kit:** permits the pulseEKKO 1000 electronics modules to be attached to any set of antennas so that antennas can be moved independently. When carrying out tomography or CMP surveys, the handles attach directly to the frame kit.

**Adjustable Antenna Handle:** attaches to all the antenna frame kits. The antenna handle gives a variable length handle for moving the antennas over the ground or for holding the antennas against a wall or roof. The remote trigger and auxiliary beeper (see below) can be fitted into the antenna handle.

**30 m Transducer Cable:** connects either the transmitter or receiver electronics modules to the control unit. This multi conductor cable is lightweight and flexible.

**Control Unit to External Power Cable:** is a cable with a standard pulseEKKO console connector which plugs into the pulseEKKO 1000 control unit. The other end of the cable has a pair of alligator clips which permits attaching the unit to a 12 volt battery or power supply.

**Control Unit to Computer RS232 Cable:** has a connector which plugs into the pulseEKKO 1000 control unit at one end and a 9-pin female RS232 connector at the other end designed to plug into a standard serial port on an IBM compatible PC.

**Auxiliary Beeper and Remote Trigger Unit:** plugs into the pulseEKKO 1000 console or into the transmitter module. The beeper portion of the unit beeps when the radar system is acquiring data. This unit is particularly useful if data acquisition in an acoustically noisy environment is anticipated. This allows the operator to know when radar data are being acquired and when to move the antennas. The trigger allows the radar system to be activated from either the antenna location or the console location. The unit can also be connected to the receiver module for the beeper function.

**Basic pulseEKKO System Software:** provides a complete acquisition through to report quality plotting capability. Hard copy data display is by black and white wiggle trace. In addition the package facilitates data editing and annotation as well as topography compensation, various time gain functions and simple filtering. The base software provides the ability to export data in a variety of formats such as SEG-Y and ASCII to third party programs such as VISTA (see below).

The base software contains:

**EKKO RUN:** The program which controls the pulseEKKO 1000, displays the data with a variety of time gains and stores data on the PC disk for post acquisition processing and plotting. Black and white wiggle trace as well as colour displays are supported.

**EKKO PLOT:** A report quality data display and hard copy generation program. Data can be plotted on any PC compatible printer with a graphics capability. Hard copy display is in wiggle trace format.

**EKKO EDIT:** A general purpose data file editing and manipulation program. Deleting, relabelling, and topographic compensation entry are some of the features of this program.

**EKKO SGY:** This program provides the capability of exporting pulseEKKO data to other processing software. Output in the SEG-Y seismic standard format and in ASCII listing are available.

**System User Manual:** provides complete instructions for assembly and operation of the pulseEKKO 1000 as well as the operation of software and manipulation of data.

## OPTIONAL ITEMS

### ANTENNAS

**225 MHz Antennas:** are shielded and come complete with a frame kit which will fix the antenna separation at 0.5 m. The antenna separation can be adjusted by using the bi-static frame kit (see above) so the antennas can be moved independently to do CMP and multi-fold data acquisition. The centre frequency is nominally 225 MHz with a bandwidth of about 225 MHz. These antennas connect to the pulseEKKO 1000 Transmitter and Receiver Modules in place of the standard 450 MHz antennas supplied with the system.

**900 MHz Antennas:** are shielded and come complete with a frame kit which will fix the antenna separation at 16.5 cm. The antenna separation can be adjusted by using the bi-static frame kit (see above). In addition the antennas can be moved independently to do CMP and multi-fold data acquisition. The centre frequency is nominally 900 MHz with a bandwidth of about 900 MHz.

### POWER SUPPLY

**pulseEKKO 1000 Battery Pack:** is a custom packaged rechargeable lead acid gel cell unit which attaches directly to the pulseEKKO 1000 console. The battery pack is capable of operating the system for 4 hours. This unit is particularly convenient if operating in areas where power is not available. In addition the integrated package makes operation simple and error proof.

**pulseEKKO 1000 110/220 A/C Power Pack:** has the same package format as the pulseEKKO 1000 battery pack but has a cord which plugs into the standard 110 or 220 volt power mains. This power pack attaches to the pulseEKKO 1000 console and provides operation of the whole radar system from A/C power.

**Control Unit to Power Pack Cable:** is a cable with pulseEKKO compatible connectors at both ends which connects the radar control console to either the pulseEKKO 1000 12 volt power pack or the pulseEKKO 1000 110/220 A/C Power Pack.

### MISCELLANEOUS

**String Odometer Kit:** is a simple device which feeds out a thread and produces a trigger for the pulseEKKO system at switch selectable intervals from 1 cm to 10 m. By fixing the odometer chassis to the antenna unit and fastening the string to a stake or fixed point at the end of a survey line, the string odometer enables acquisition of data at fixed spatial intervals.

**Cable Reel:** is a custom assembly designed to carry two 30 m pulseEKKO 1000 transducer cables. The reel is designed to allow the user to pull out as much cable as is needed for a particular application and leave the remaining part of the cable on the reel and still allow connection to the control unit.

**High Speed Acquisition Kit:** is designed to allow the user to acquire data at a much higher rate than is possible over the standard RS232 communications port on the PC. The kit consists of an electronics module and optimized high speed software. The high speed acquisition kit is most useful if the radar system is to be towed or carried by a vehicle to acquire data in a "continuous" fashion.

The high speed EKKO RUN program is designed to support the high speed acquisition option of the pulseEKKO 1000 system. This program, when combined with the high speed adapter, uses a high performance IBM PC compatible with VGA graphics to provide high speed acquisition and display of GPR data from the pulseEKKO 1000 system.

The "Fast Port" PC printer port adapter is a small box with a pulseEKKO console compatible connector on one end and a 25-pin connector which plugs into the standard IBM compatible PC printer port. This unit provides a high speed data transfer from the radar control console to the controlling computer. This port gives much higher data transfer rates and hence higher radar tranverse speeds are possible.

## EKKO SOFTWARE

**EKKO SYN:** is a synthetic radar program providing the ability to simulate the response of the ground assuming flat-lying layers. The user enters the dielectric properties and attenuation for any number of layers in the ground and the program generates the impulse response including all multiples. The program also enables convolution with a number of different shaped pulses (including the pulseEKKO pulse) to create a synthetic radargram.

**EKKO CMP:** is a velocity analysis radar program which allows the user to automatically analyze a CMP sounding to estimate velocity. The individual traces of a CMP sounding are stacked assuming a constant move-out velocity and the program sweeps through a suite of move-out velocities. Optimal stacking velocity is an indication of the best RMS velocity for a given reflector.

**EKKO RANG:** is a radar range program which allows the user to estimate the depth of exploration of a radar system for a given set of ground conditions and target geometries. This package is a must for any user who wants to attempt to predict performance in various geologic settings.

**EKKO COLOR:** is color plotting software which allows the user to generate a variety of color displays of GPR data. A color palette of 256 colors selected from a range of 16 million colors can be used for presenting GPR data. In addition the output files are compatible with Geosoft geophysical plotting software and hence are adaptable to a wide variety of image and graphics editing.

**EKKO TOOLS:** is a library of programs which allows the user to edit and process data. Basic Features include spatial and temporal filtering a variety of time gains, section merging, addition and subtraction, attribute analysis and a host of other GPR specific analysis tools. This package is invaluable to the user who plans to do extensive data manipulation and processing.

**VISTA GPR:** is a complete seismic processing package which operates on an IBM compatible PC. The GPR basic package provides standard filtering both spatial and temporal as well as features such as deconvolution and a variety of gain and scaling functions. The GPR advance module provides the capability of image processing such as FK migration, FK filtering, and other related full section processing. The trace plot and programmer modules are optional items which allow plotting and user programming of functions within the VISTA GPR environment. (See VISTA GPR brochure)



## **APPENDIX-B Radar Profiles**

pulseEKKO HEADER PARAMETERS

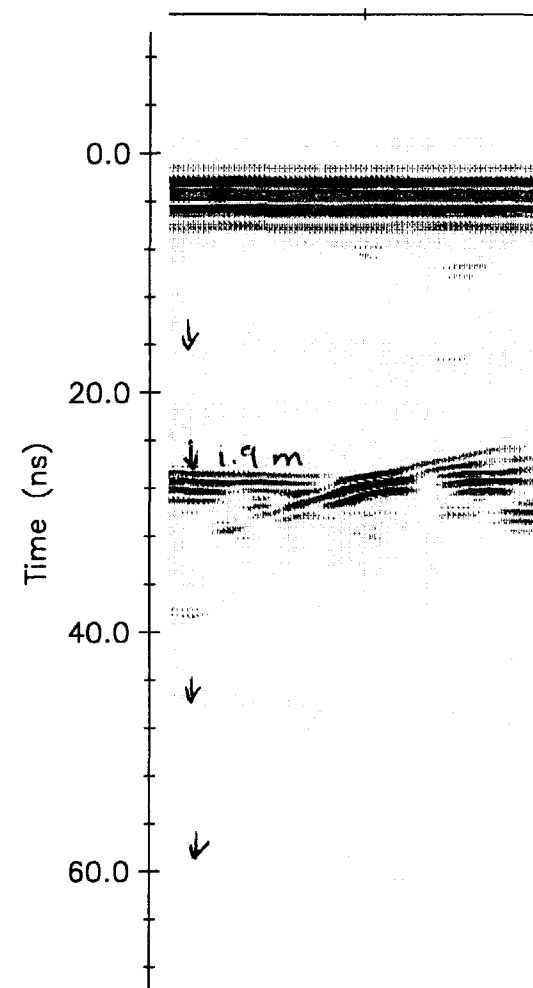
FILE = C:\EKKO42\QUAR-VB\18  
JOB# = 1  
TITLE = WHITEDOG PROSPECT  
TITLE = TOP LINE NE RERUN  
DATE = 20/08/10  
NUMBER OF TRACES = 584  
NUMBER OF PTS/TRC = 400  
TIMEZERO AT POINT = 53  
TOTAL TIME WINDOW = 80  
STARTING POSITION = 0.000  
FINAL POSITION = 29.150  
STEP SIZE USED = 0.050  
POSITION UNITS = metres  
NOMINAL FREQUENCY = 450.00  
ANTENNA SEPARATION = 0.250  
PULSER VOLTAGE = 200  
NUMBER OF STACKS = 4  
SURVEY MODE = Reflection  
COLLECTED BY PE1000 - CON: 990227 RX: 990228  
TX: 990229 ANT: 971171/72

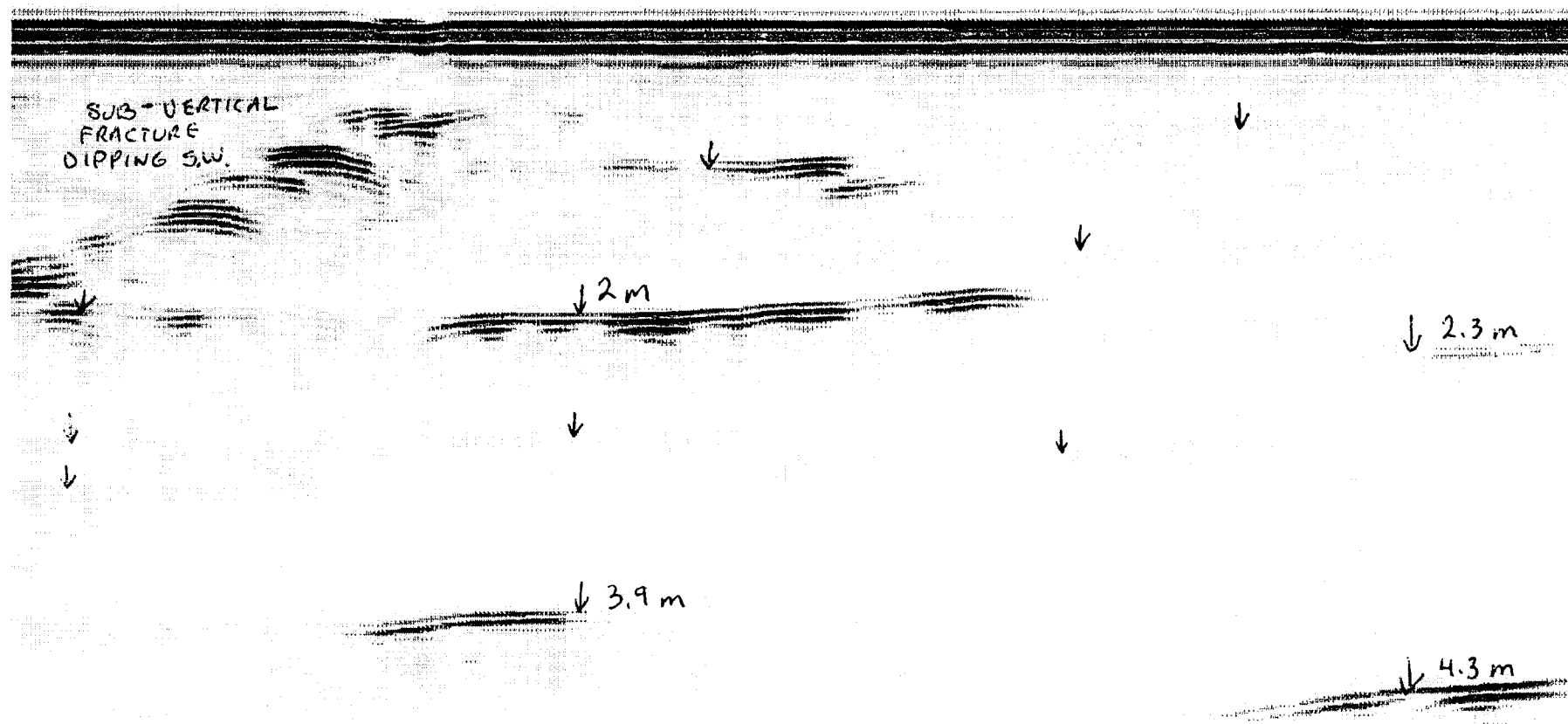
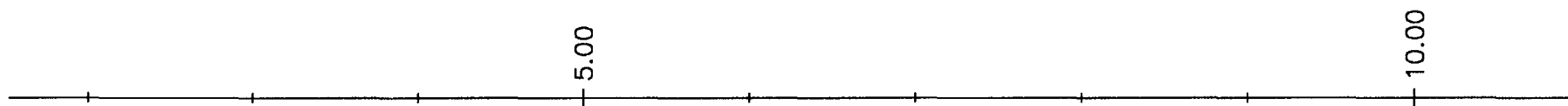
PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW  
SELECTION TIME: -10 to 70  
POSITIONS: 0.000 to 29.150  
GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
PAGE WIDTH: 7.0000  
BORDER SIZE: 0.000  
PRINTER NAME: HP560CA  
SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0





Position

15.00

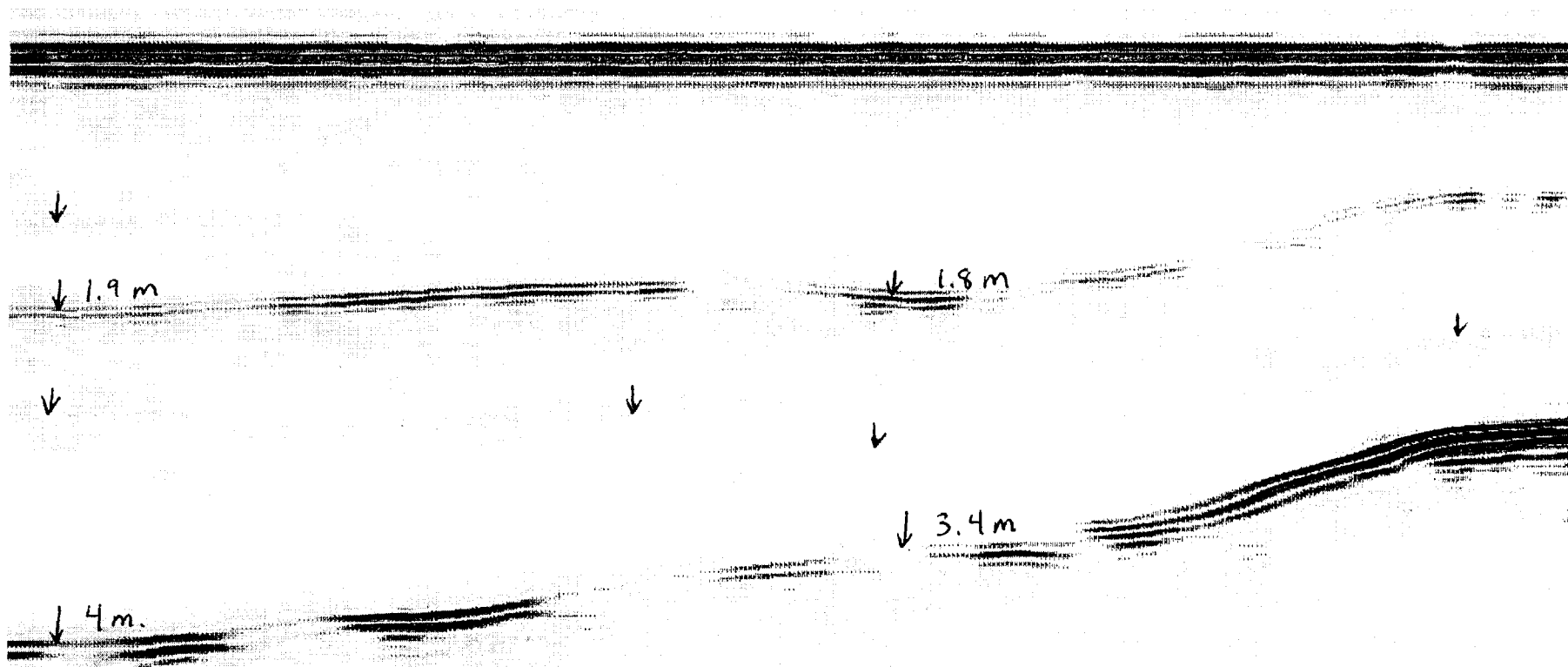
20.00

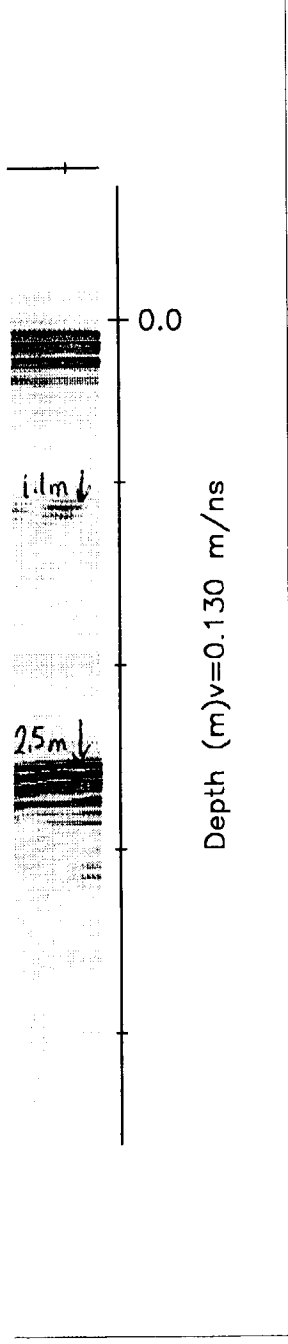


↓ 2.3 m



↓ 4 m.







pulseEKKO HEADER PARAMETERS

FILE = C:\EKKO42\QUAR-VB\21

JOB# = 1

TITLE = WHITEDOG PROSPECT

TITLE = MID LINE RERUN

DATE = 26/08/10

NUMBER OF TRACES = 560

NUMBER OF PTS/TRC = 400

TIMEZERO AT POINT = 54

TOTAL TIME WINDOW = 80

STARTING POSITION = 0.000

FINAL POSITION = 28.000

STEP SIZE USED = 0.050

POSITION UNITS = metres

NOMINAL FREQUENCY = 450.00

ANTENNA SEPARATION = 0.250

PULSER VOLTAGE = 200

NUMBER OF STACKS = 4

SURVEY MODE = Reflection

COLLECTED BY PE1000 - CON: 990227 RX: 990228

TX: 990229 ANT: 971171/72

PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW

SELECTION TIME: -10 to 70  
POSITIONS: 0.000 to 27.950

GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

TRACE SPACING AND WIDTH: 0.0500 and 0.1000

TRACE BOTTOM AND TOP: 1.0000 and 6.0000

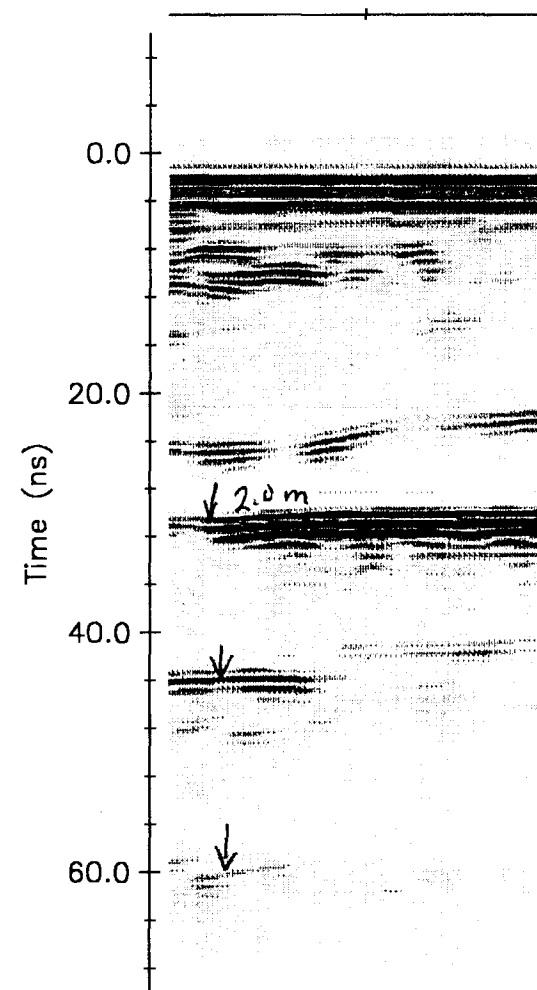
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000

PAGE WIDTH: 7.0000

BORDER SIZE: 0.000

PRINTER NAME: HP560CA

SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0



5.00

10.00



↓ 1.9



↓ 3.8 m

↓ 1.4 m



↓ 3.2 m

B-7

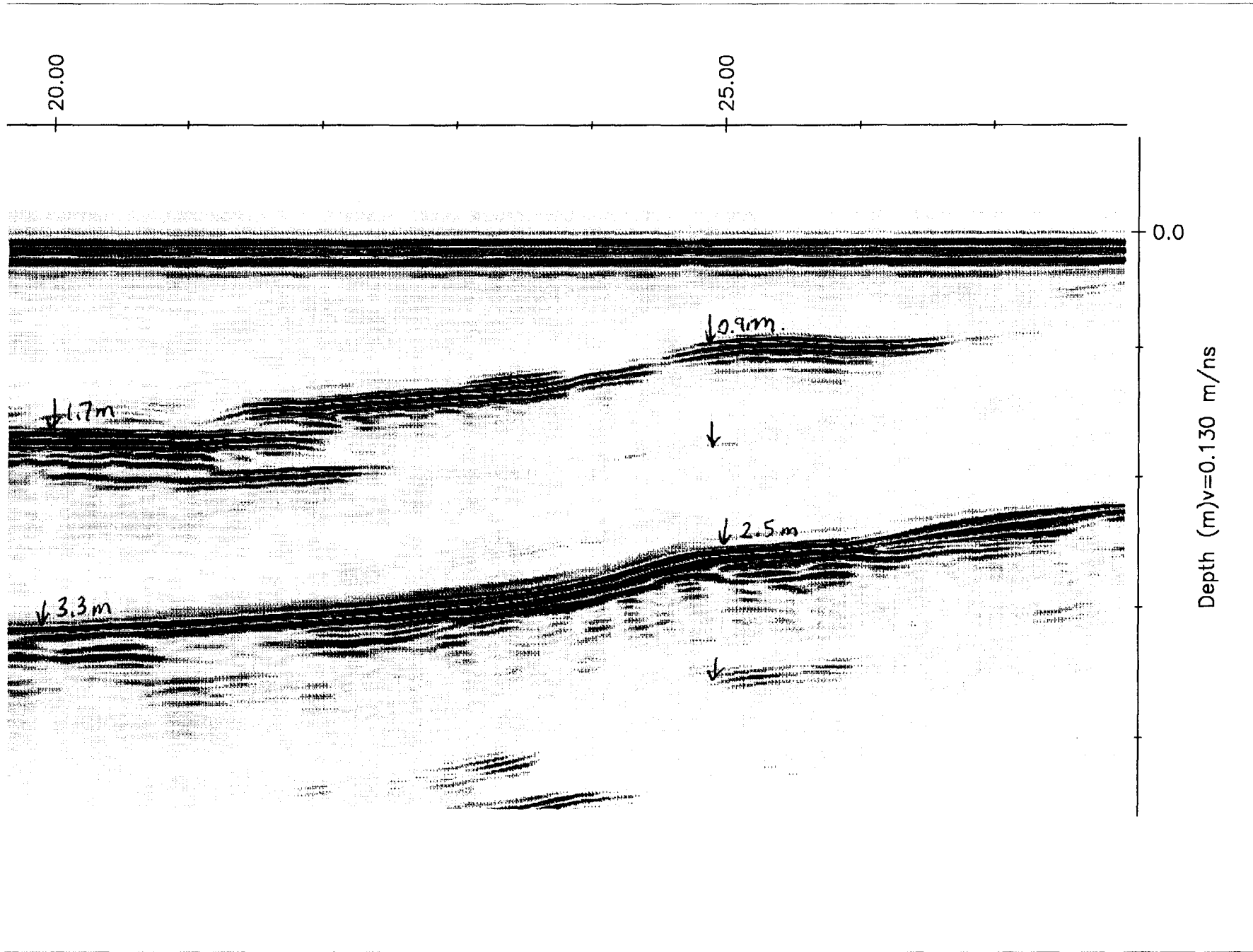
Position

15.00

20.00

2m

3.4



pulseEKKO HEADER PARAMETERS

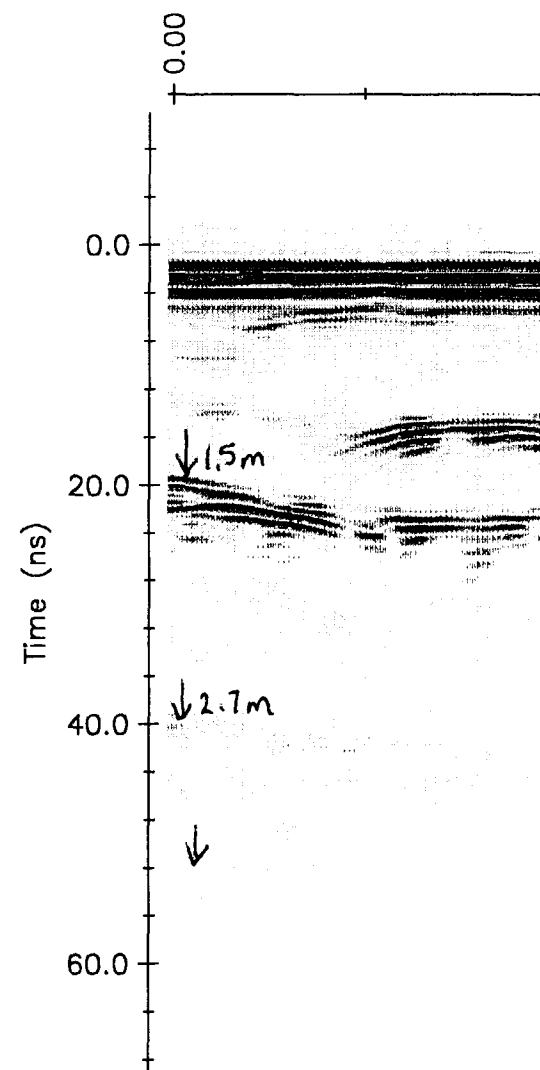
FILE = C:\EKKO42\QUAR-VB\22  
 JOB# = 1  
 TITLE = WHITEDOG PROSPECT  
 TITLE = bottom line rerun  
 DATE = 26/08/10  
 NUMBER OF TRACES = 375  
 NUMBER OF PTS/TRC = 400  
 TIMEZERO AT POINT = 56  
 TOTAL TIME WINDOW = 80  
 STARTING POSITION = 0.000  
 FINAL POSITION = 18.700  
 STEP SIZE USED = 0.050  
 POSITION UNITS = metres  
 NOMINAL FREQUENCY = 450.00  
 ANTENNA SEPARATION = 0.250  
 PULSER VOLTAGE = 200  
 NUMBER OF STACKS = 4  
 SURVEY MODE = Reflection  
 COLLECTED BY PE1000 - CON: 990227 RX: 990228  
 TX: 990229 ANT: 971171/72

PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
 POINT STACKING: 1  
 TRACE DIFFERENCING: N  
 CORRECTION: DEWOW  
 SELECTION TIME: -11 to 69  
 POSITIONS: 0.000 to 18.700  
 GAINS: GAIN TYPE: SEC  
 MAX GAIN (Manual): 75  
 ATTENUATION: 0.010  
 START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

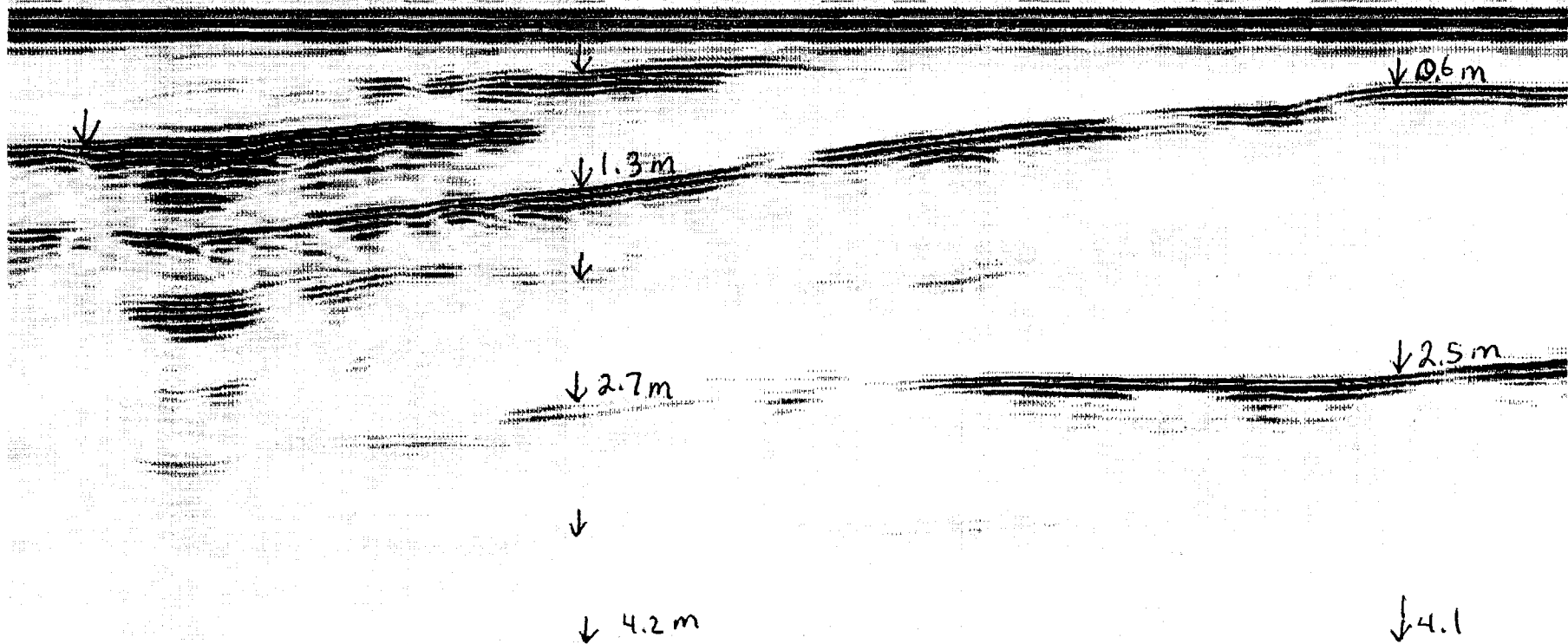
TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
 TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
 MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
 PAGE WIDTH: 7.0000  
 BORDER SIZE: 0.000  
 PRINTER NAME: HP560CA  
 SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0

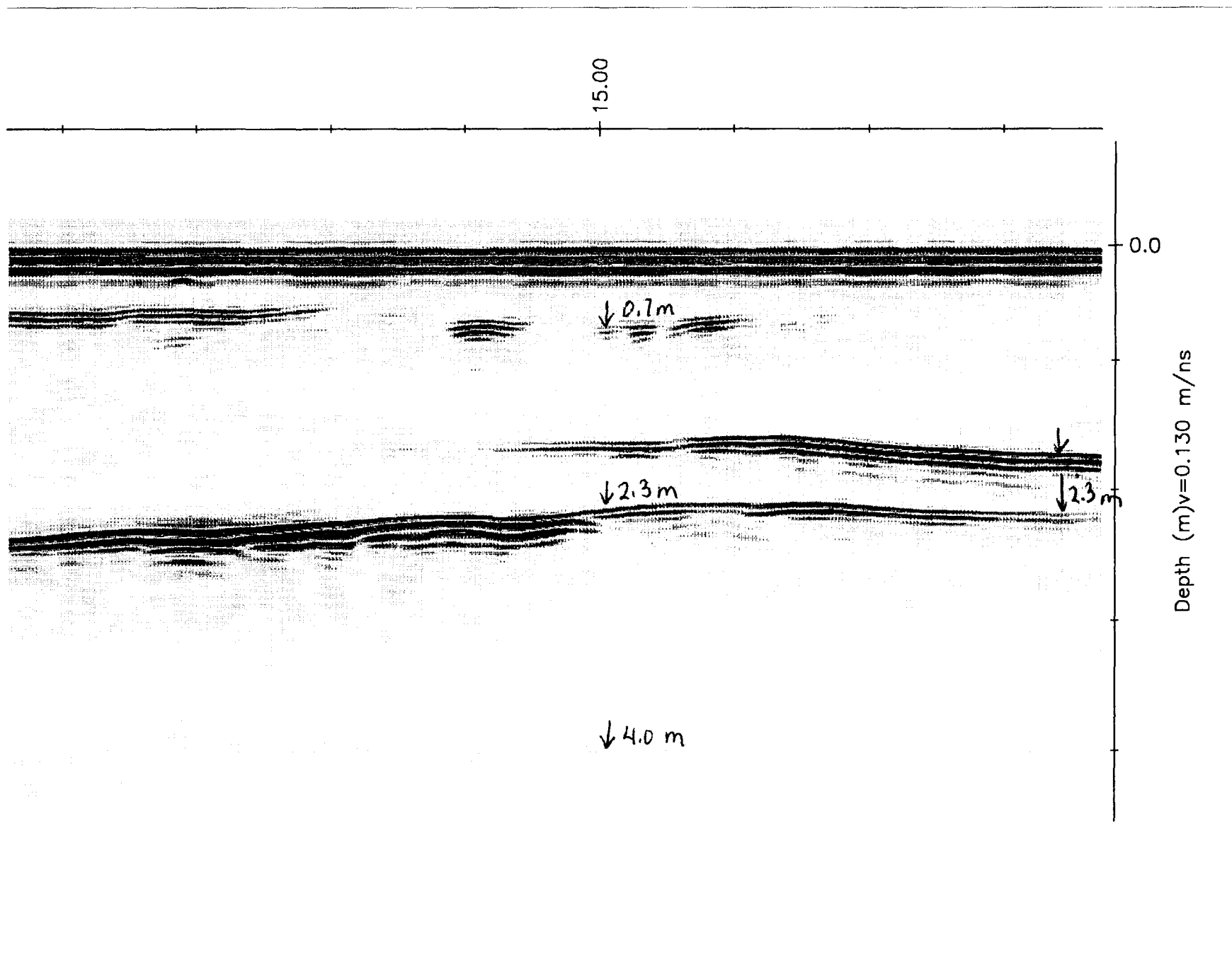


Position

5.00

10.00





pulseEKKO HEADER PARAMETERS

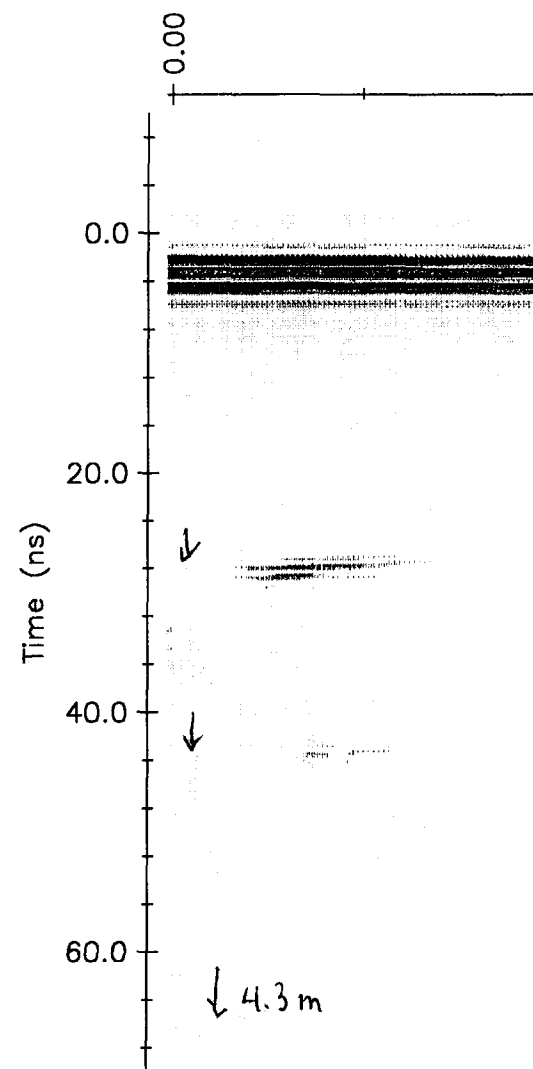
FILE = C:\EKKO42\QUAR-VB\9  
JOB# = 1  
TITLE = WHITEDOG PROSPECT  
TITLE = centre line 132 deg 450 mg antenna  
DATE = 20/08/10  
NUMBER OF TRACES = 468  
NUMBER OF PTS/TRC = 400  
TIMEZERO AT POINT = 54  
TOTAL TIME WINDOW = 80  
STARTING POSITION = 0.000  
FINAL POSITION = 23.350  
STEP SIZE USED = 0.050  
POSITION UNITS = metres  
NOMINAL FREQUENCY = 450.00  
ANTENNA SEPARATION = 0.250  
PULSER VOLTAGE = 200  
NUMBER OF STACKS = 4  
SURVEY MODE = Reflection  
COLLECTED BY PE1000 - CON: 990227 RX: 990228  
TX: 990229 ANT: 971171/72

PROCESSING SELECTED

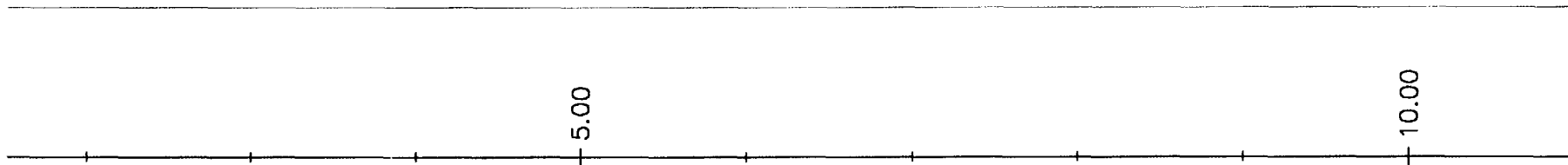
FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW  
SELECTION TIME: -10 to 70  
POSITIONS: 0.000 to 23.350  
GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
PAGE WIDTH: 7.0000  
BORDER SIZE: 0.000  
PRINTER NAME: HP560CA  
SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0



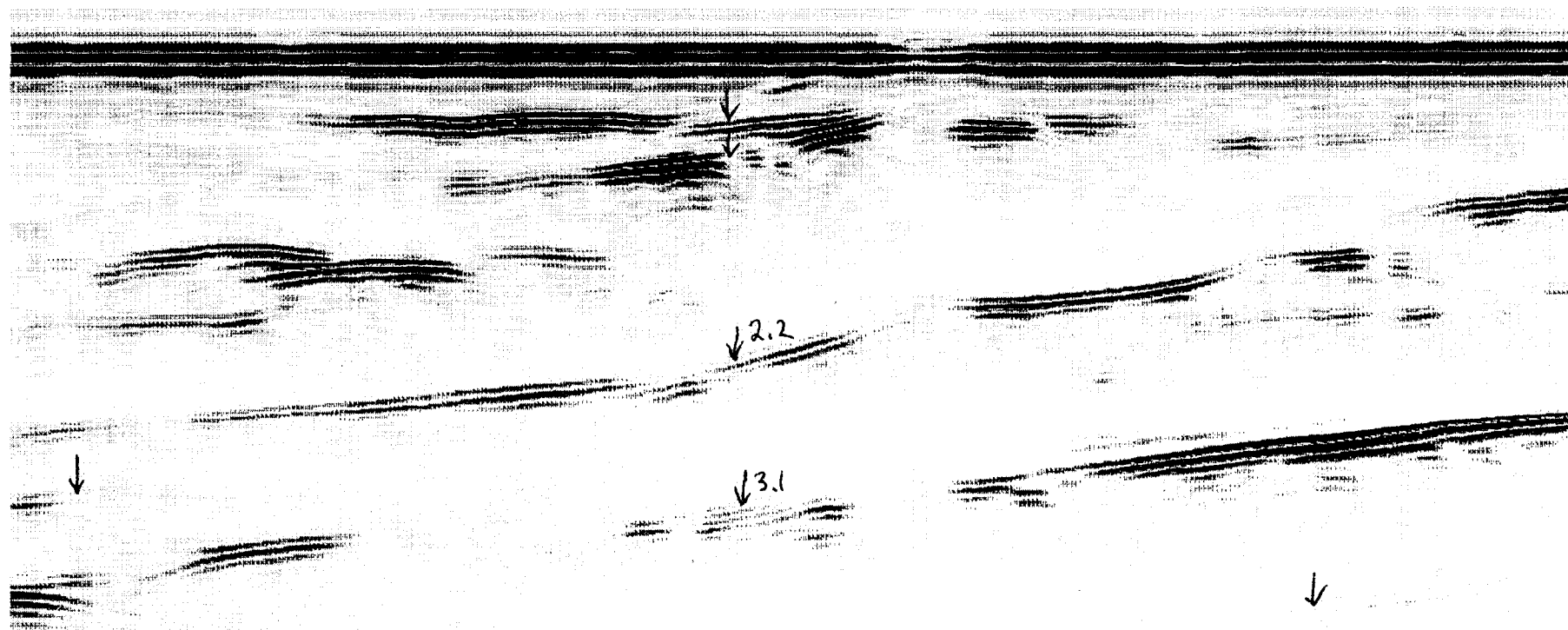




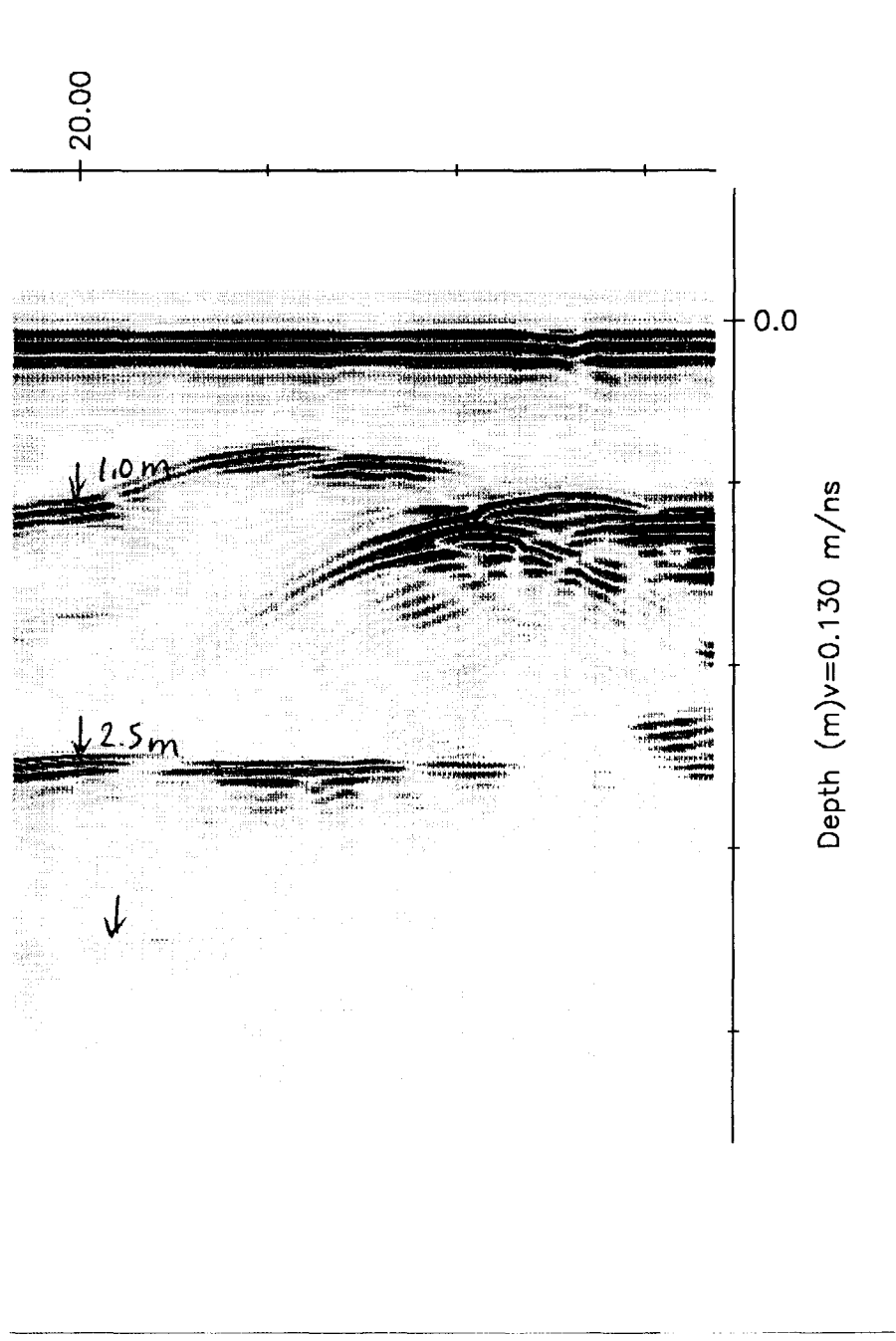
Position

15.00

20.00



B-15



pulseEKKO HEADER PARAMETERS

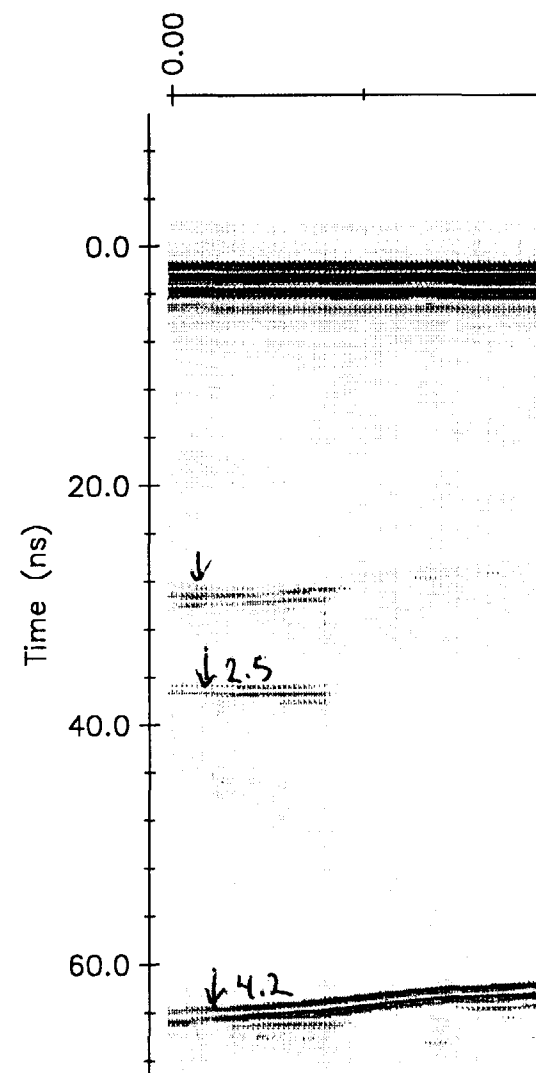
FILE = C:\EKKO42\QUAR-VB\16  
JOB# = 1  
TITLE = WHITEDOG PROSPECT  
TITLE = LINE 10 NW 450 MHZ ANT. LONG RUN  
DATE = 20/08/10  
NUMBER OF TRACES = 453  
NUMBER OF PTS/TRC = 400  
TIMEZERO AT POINT = 56  
TOTAL TIME WINDOW = 80  
STARTING POSITION = 0.000  
FINAL POSITION = 22.600  
STEP SIZE USED = 0.050  
POSITION UNITS = metres  
NOMINAL FREQUENCY = 450.00  
ANTENNA SEPARATION = 0.250  
PULSER VOLTAGE = 200  
NUMBER OF STACKS = 4  
SURVEY MODE = Reflection  
COLLECTED BY PE1000 - CON: 990227 RX: 990228  
TX: 990229 ANT: 971171/72

PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW  
SELECTION TIME: -11 to 69  
POSITIONS: 0.000 to 22.600  
GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
PAGE WIDTH: 7.0000  
BORDER SIZE: 0.000  
PRINTER NAME: HP560CA  
SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0



5.00

10.00



↓ 2.5m



↓ 2.0m

↓ 3.9m

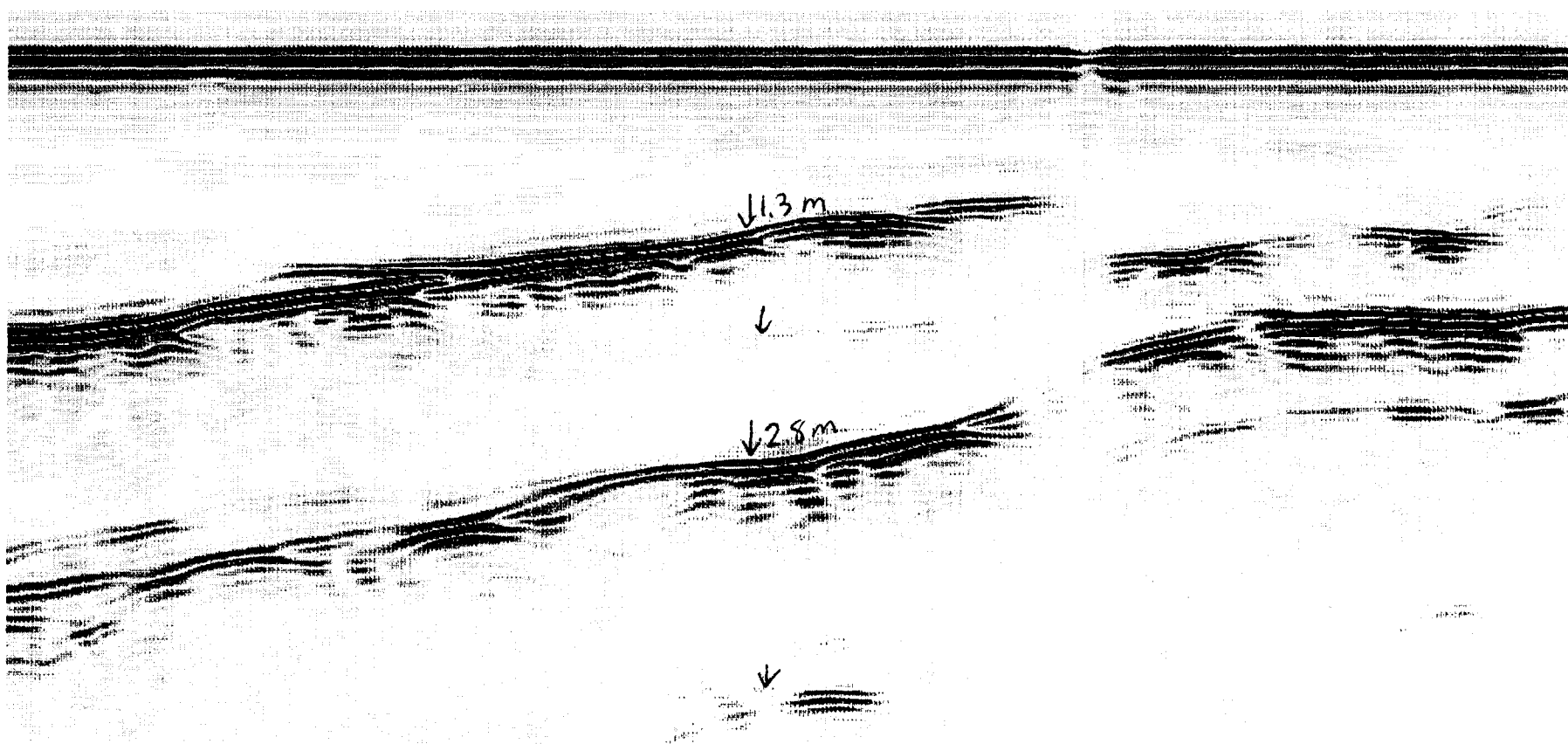
↓ 3.5m

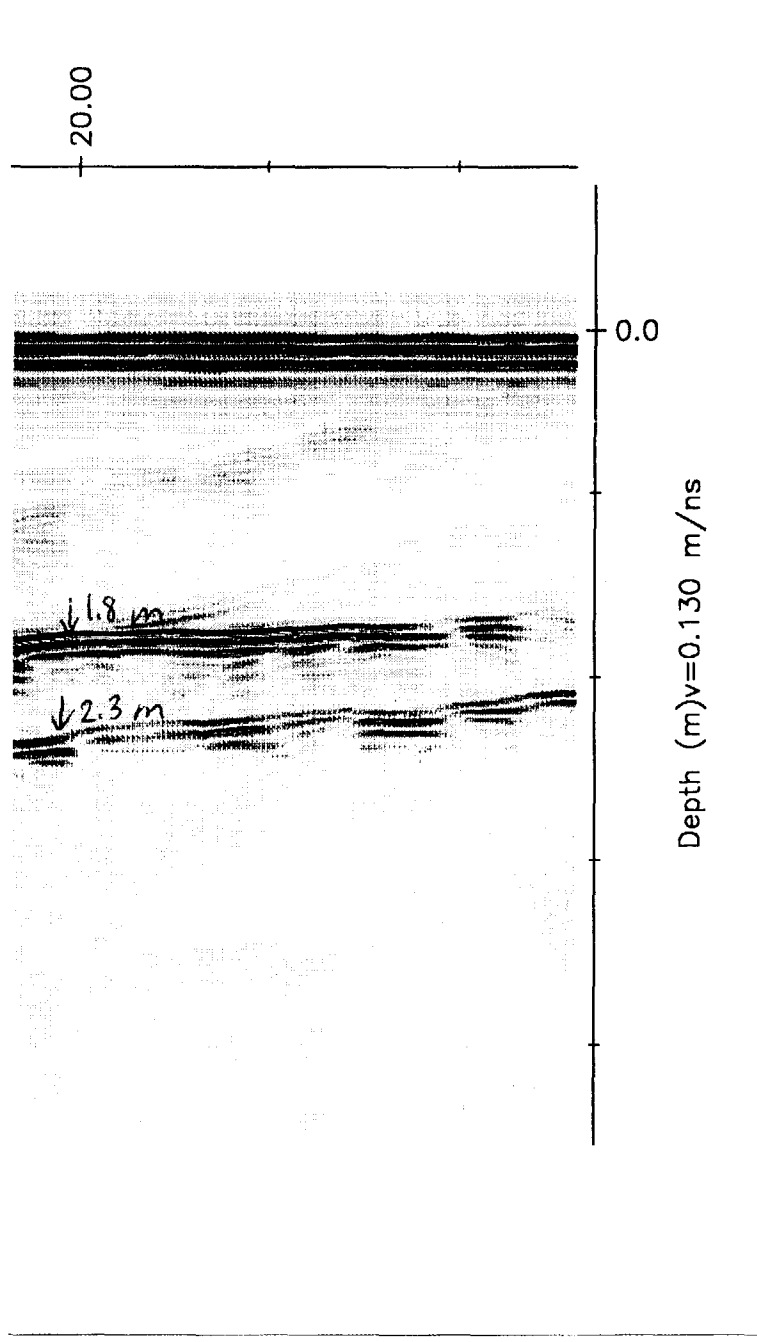
B-18

Position

15.00

20.00





pulseEKKO HEADER PARAMETERS

FILE = C:\EKKO42\QUAR-VB\23

JOB# = 1

TITLE = WHITEDOG PROPERTY SOUTH SHOWING

TITLE = LINE C

DATE = 26/08/10

NUMBER OF TRACES = 450

NUMBER OF PTS/TRC = 400

TIMEZERO AT POINT = 56

TOTAL TIME WINDOW = 80

STARTING POSITION = 0.000

FINAL POSITION = 22.450

STEP SIZE USED = 0.050

POSITION UNITS = metres

NOMINAL FREQUENCY = 450.00

ANTENNA SEPARATION = 0.250

PULSER VOLTAGE = 200

NUMBER OF STACKS = 4

SURVEY MODE = Reflection

COLLECTED BY PE1000 - CON: 990227 RX: 990228

TX: 990229 ANT: 971171/72

PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW

SELECTION TIME: -11 to 69  
POSITIONS: 0.000 to 22.450

GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

TRACE SPACING AND WIDTH: 0.0500 and 0.1000

TRACE BOTTOM AND TOP: 1.0000 and 6.0000

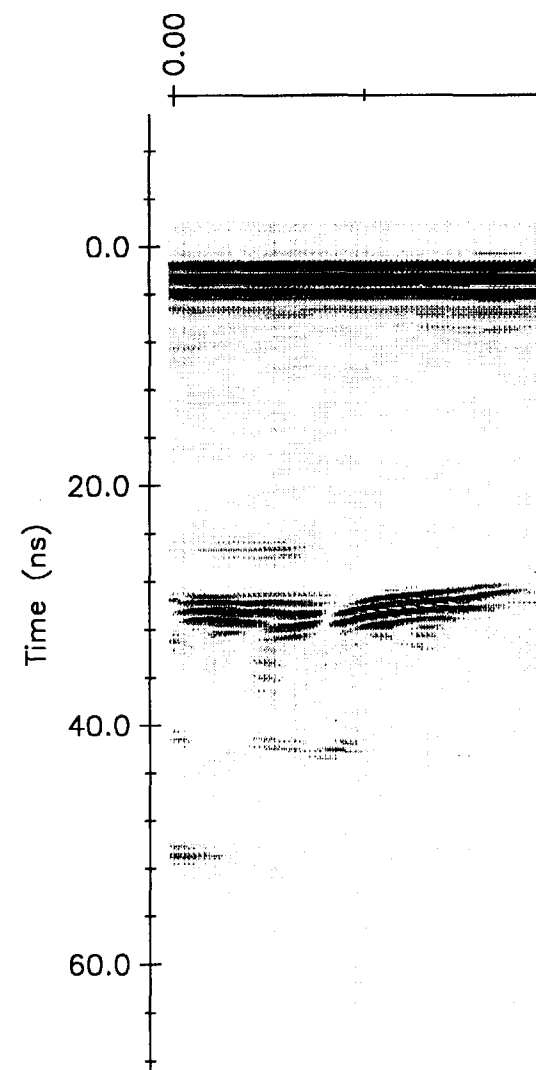
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000

PAGE WIDTH: 7.0000

BORDER SIZE: 0.000

PRINTER NAME: HP560CA

SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0





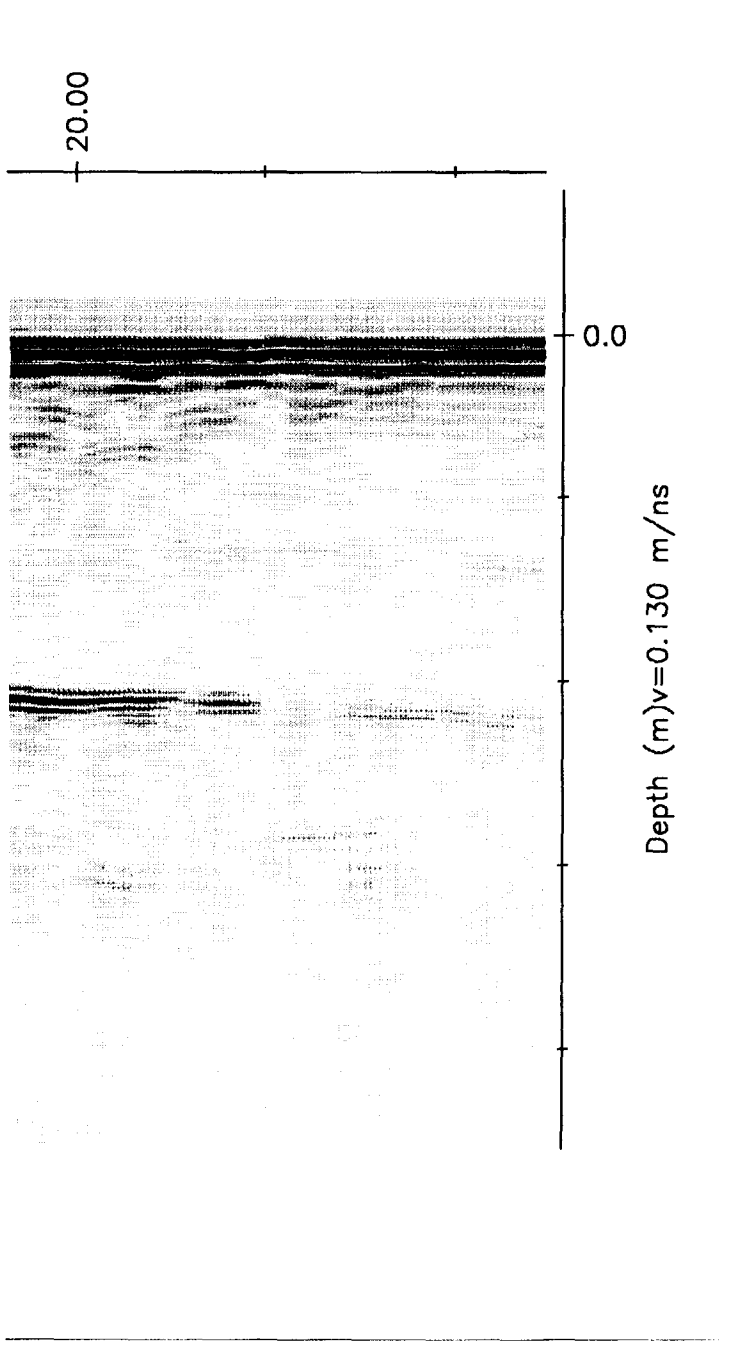
5.00

10.00

Position

15.00

20 00



pulseEKKO HEADER PARAMETERS

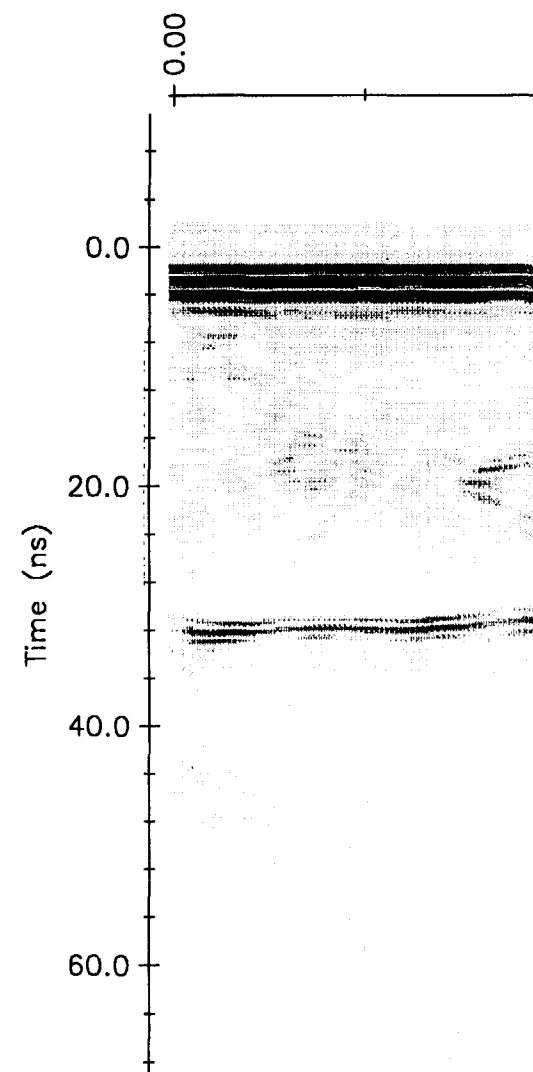
FILE = C:\EKKO42\QUAR-VB\24  
JOB# = 1  
TITLE = WHITEDOG PROPERTY SOUTH SHOWING  
TITLE = LINE D  
DATE = 26/08/10  
NUMBER OF TRACES = 140  
NUMBER OF PTS/TRC = 400  
TIMEZERO AT POINT = 55  
TOTAL TIME WINDOW = 80  
STARTING POSITION = 0.000  
FINAL POSITION = 7.000  
STEP SIZE USED = 0.050  
POSITION UNITS = metres  
NOMINAL FREQUENCY = 450.00  
ANTENNA SEPARATION = 0.250  
PULSER VOLTAGE = 200  
NUMBER OF STACKS = 4  
SURVEY MODE = Reflection  
COLLECTED BY PE1000 - CON: 990227 RX: 990228  
TX: 990229 ANT: 971171/72

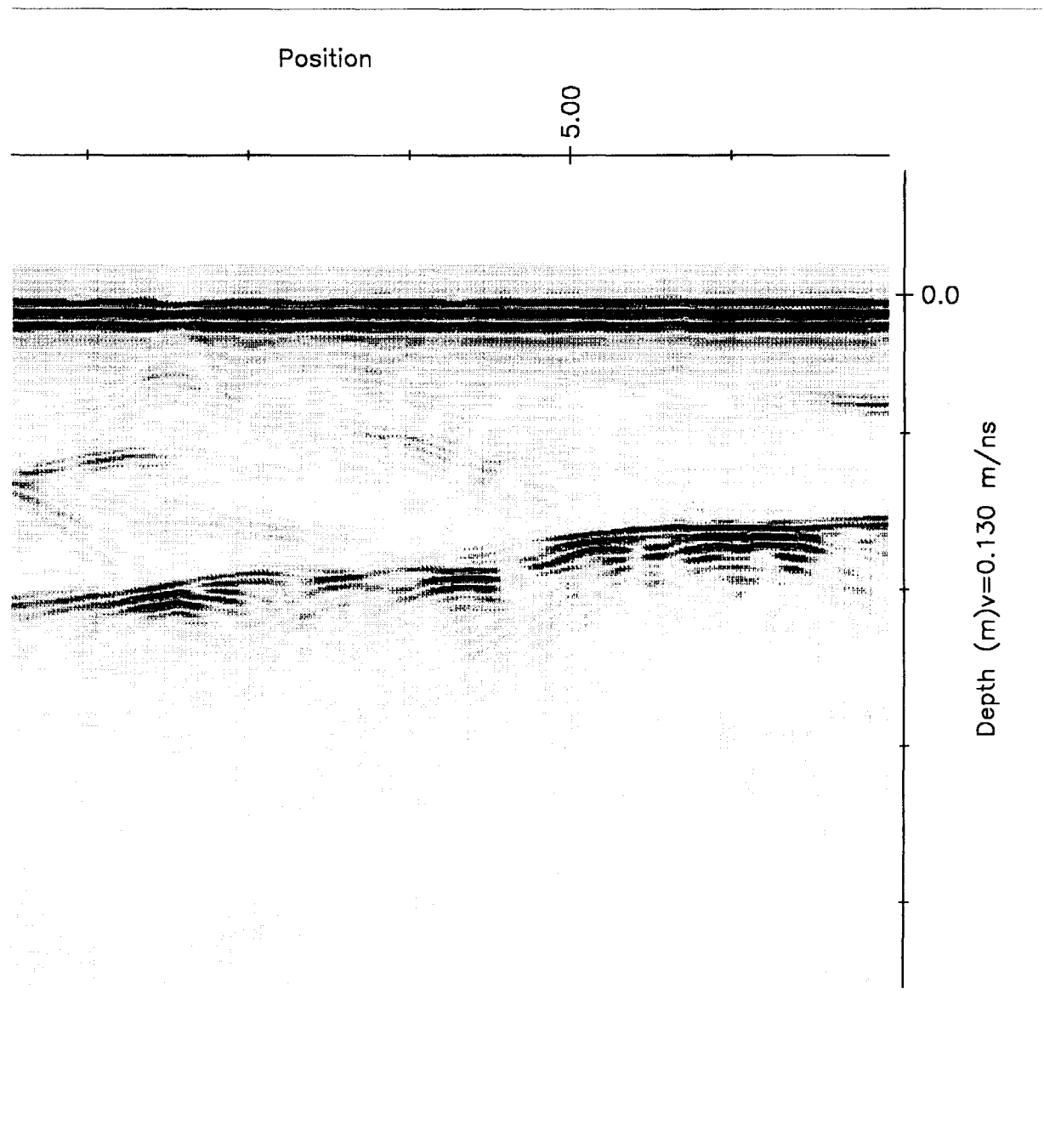
PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW  
SELECTION TIME: -11 to 69  
POSITIONS: 0.000 to 6.950  
GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
PAGE WIDTH: 7.0000  
BORDER SIZE: 0.000  
PRINTER NAME: HP560CA  
SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0





pulseEKKO HEADER PARAMETERS

FILE = C:\EKKO42\QUAR-VB\25  
JOB# = 1  
TITLE = WHITEDOG PROPERTY SOUTH SHOWING  
TITLE = LINE E  
DATE = 26/08/10  
NUMBER OF TRACES = 247  
NUMBER OF PTS/TRC = 400  
TIMEZERO AT POINT = 55  
TOTAL TIME WINDOW = 80  
STARTING POSITION = 0.000  
FINAL POSITION = 12.300  
STEP SIZE USED = 0.050  
POSITION UNITS = metres  
NOMINAL FREQUENCY = 450.00  
ANTENNA SEPARATION = 0.250  
PULSER VOLTAGE = 200  
NUMBER OF STACKS = 4  
SURVEY MODE = Reflection  
COLLECTED BY PE1000 - CON: 990227 RX: 990228  
TX: 990229 ANT: 971171/72

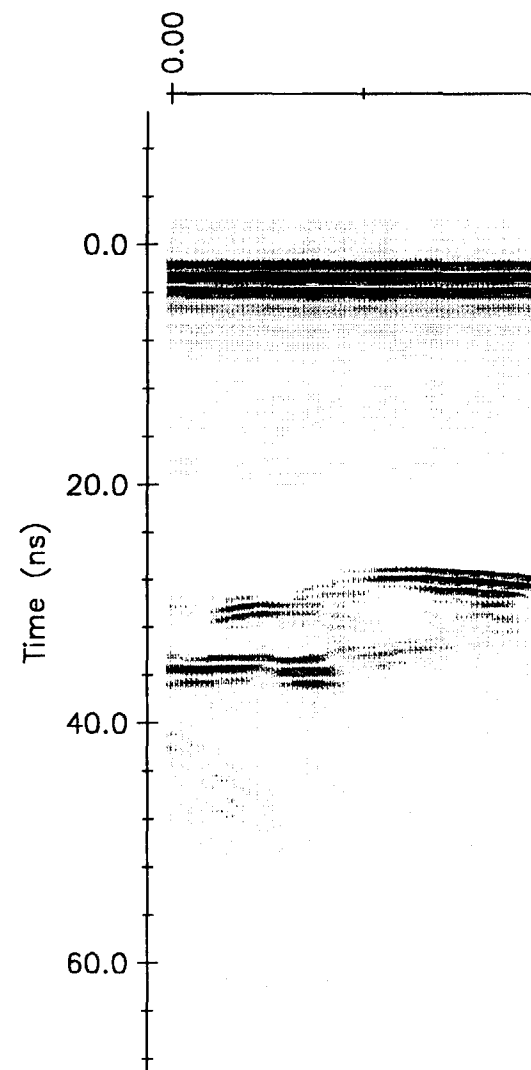
PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW  
SELECTION TIME: -11 to 69  
POSITIONS: 0.000 to 12.300  
GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
PAGE WIDTH: 7.0000  
BORDER SIZE: 0.000  
PRINTER NAME: HP560CA  
SCALE BAR: Name:COLC 3 Type:L Min:-20000 Max:

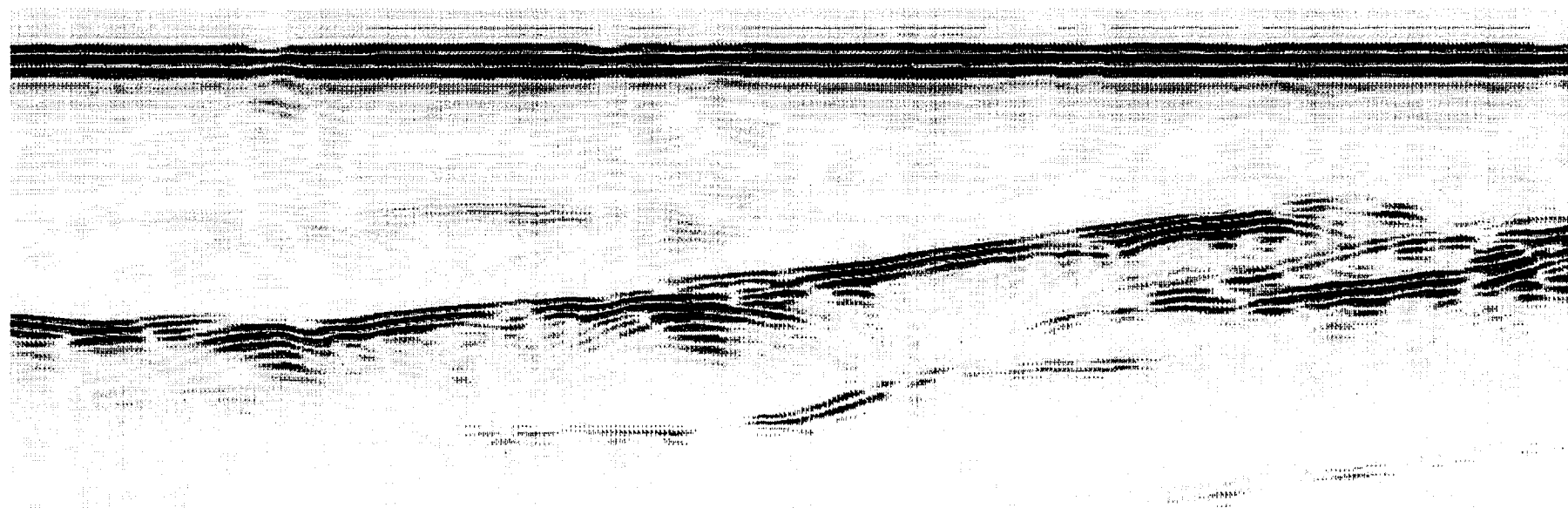
Contour:0



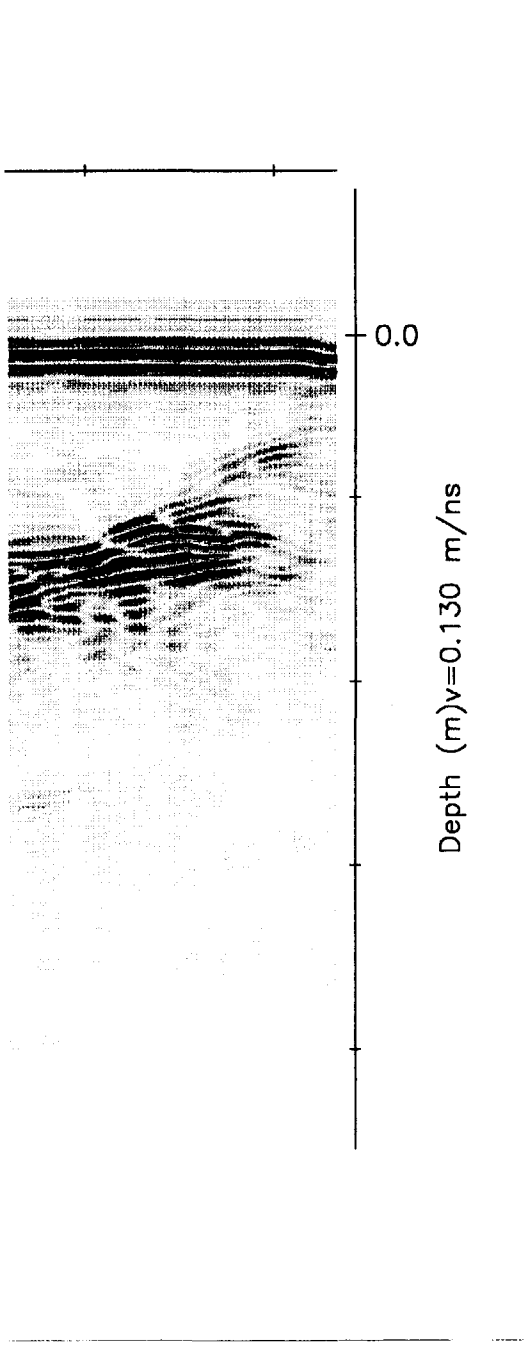
Position

5.00

10.00



B-28





pulseEKKO HEADER PARAMETERS

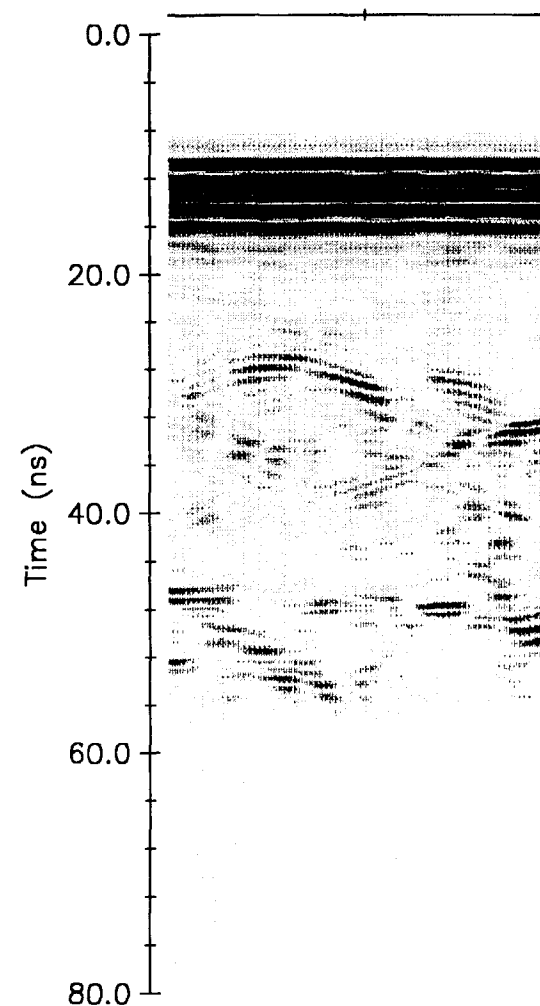
FILE = C:\EKKO42\QUAR-VB\27  
JOB# = 1  
TITLE = WHITEDOG PROPERTY SOUTH SHOWING  
TITLE = LINE F  
DATE = 26/08/10  
NUMBER OF TRACES = 236  
NUMBER OF PTS/TRC = 400  
TIMEZERO AT POINT = 1  
TOTAL TIME WINDOW = 80  
STARTING POSITION = 0.000  
FINAL POSITION = 11.750  
STEP SIZE USED = 0.050  
POSITION UNITS = metres  
NOMINAL FREQUENCY = 450.00  
ANTENNA SEPARATION = 0.250  
PULSER VOLTAGE = 200  
NUMBER OF STACKS = 4  
SURVEY MODE = Reflection  
COLLECTED BY PE1000 - CON: 990227 RX: 990228  
TX: 990229 ANT: 971171/72

PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW  
SELECTION TIME: 0 to 80  
POSITIONS: 0.000 to 11.750  
GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
PAGE WIDTH: 7.0000  
BORDER SIZE: 0.000  
PRINTER NAME: HP560CA  
SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0

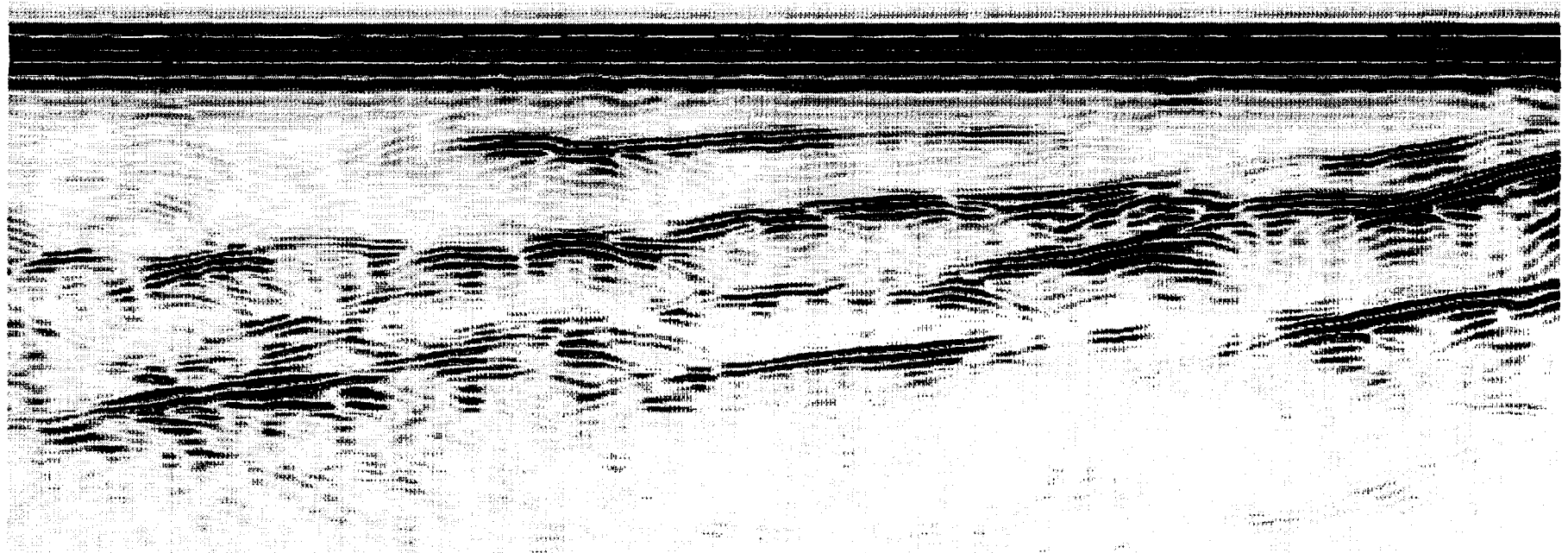


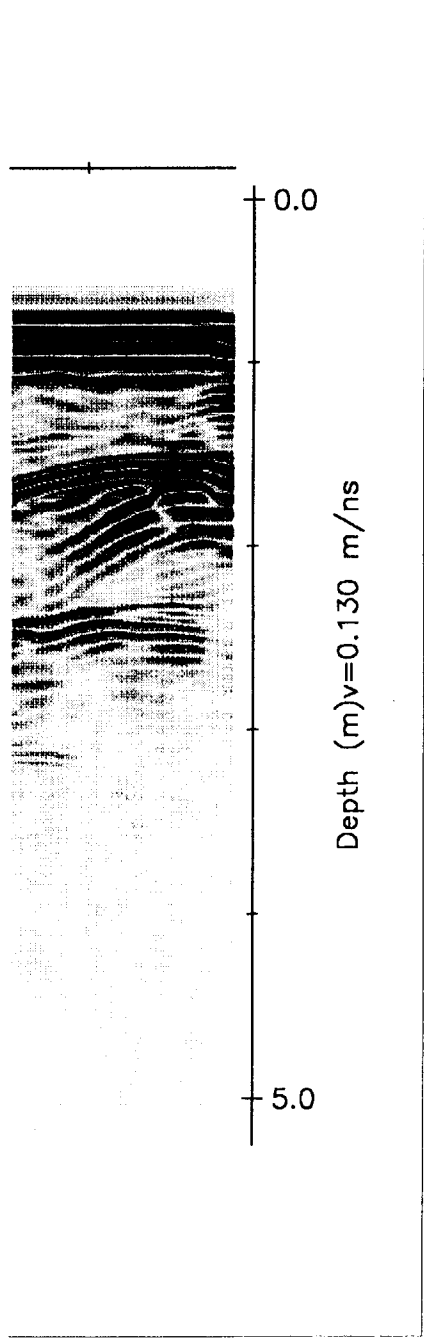
B-30

Position

5.00

10.00





pulseEKKO HEADER PARAMETERS

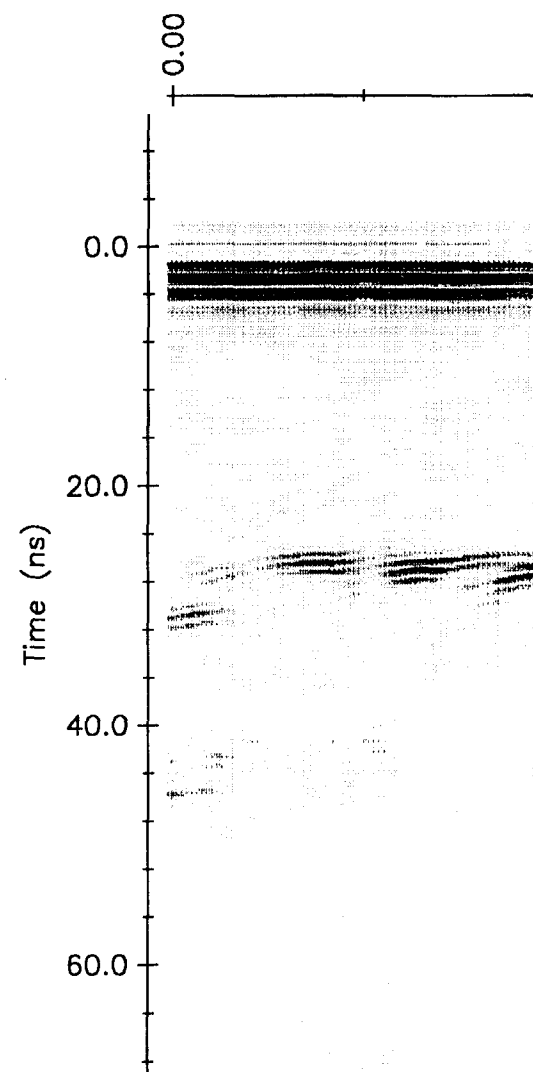
FILE = C:\EKKO42\QUAR-VB\28  
JOB# = 1  
TITLE = WHITEDOG PROPERTY SOUTH SHOWING  
TITLE = LINE G  
DATE = 26/08/10  
NUMBER OF TRACES = 232  
NUMBER OF PTS/TRC = 400  
TIMEZERO AT POINT = 55  
TOTAL TIME WINDOW = 80  
STARTING POSITION = 0.000  
FINAL POSITION = 11.650  
STEP SIZE USED = 0.050  
POSITION UNITS = metres  
NOMINAL FREQUENCY = 450.00  
ANTENNA SEPARATION = 0.250  
PULSER VOLTAGE = 200  
NUMBER OF STACKS = 4  
SURVEY MODE = Reflection  
COLLECTED BY PE1000 - CON: 990227 RX: 990228  
TX: 990229 ANT: 971171/72

PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW  
SELECTION TIME: -11 to 69  
POSITIONS: 0.000 to 11.550  
GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

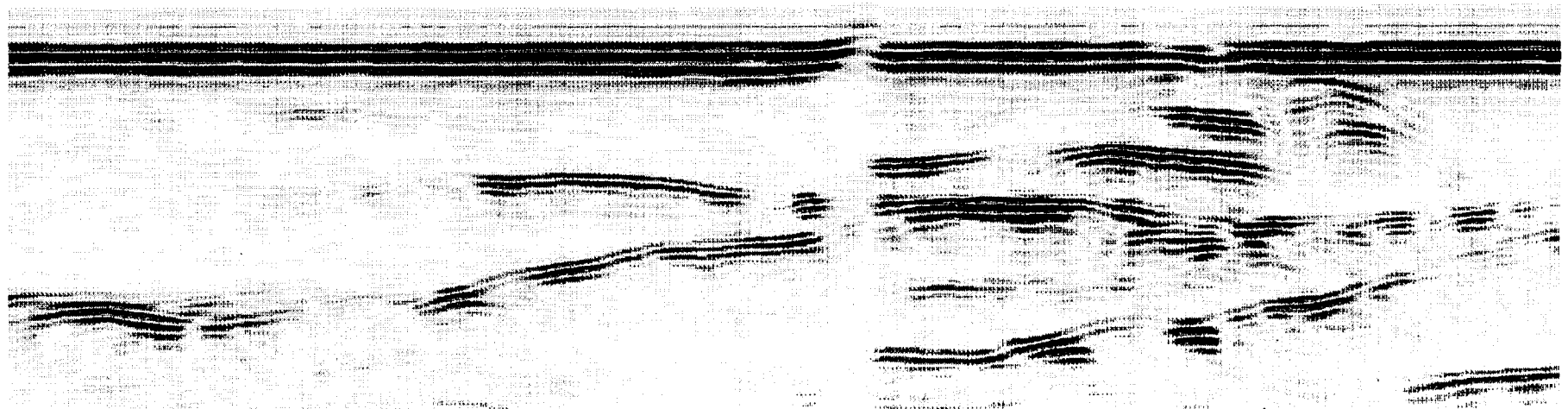
TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
PAGE WIDTH: 7.0000  
BORDER SIZE: 0.000  
PRINTER NAME: HP560CA  
SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0

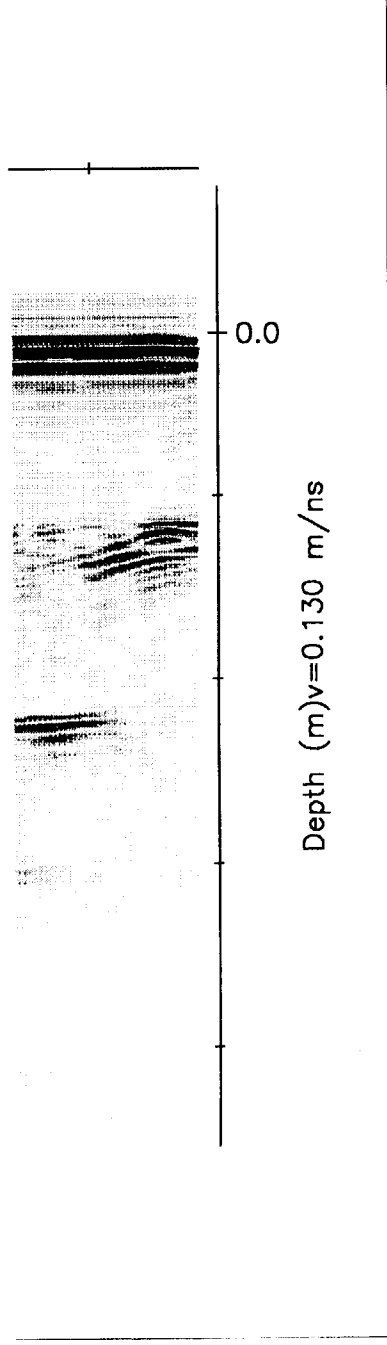


Position

5.00

10.00





pulseEKKO HEADER PARAMETERS

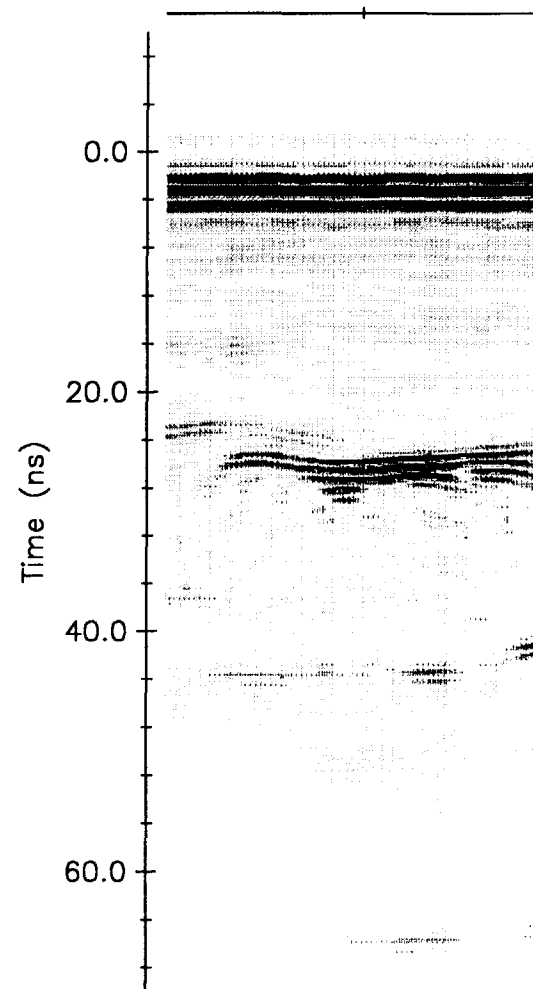
FILE = C:\EKK042\QUAR-VB\29  
JOB# = 1  
TITLE = WHITEDOG PROPERTY SOUTH SHOWING  
TITLE = LINE H  
DATE = 26/08/10  
NUMBER OF TRACES = 238  
NUMBER OF PTS/TRC = 400  
TIMEZERO AT POINT = 54  
TOTAL TIME WINDOW = 80  
STARTING POSITION = 0.000  
FINAL POSITION = 11.850  
STEP SIZE USED = 0.050  
POSITION UNITS = metres  
NOMINAL FREQUENCY = 450.00  
ANTENNA SEPARATION = 0.250  
PULSER VOLTAGE = 200  
NUMBER OF STACKS = 4  
SURVEY MODE = Reflection  
COLLECTED BY PE1000 - CON: 990227 RX: 990228  
TX: 990229 ANT: 971171/72

PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW  
SELECTION TIME: -10 to 70  
POSITIONS: 0.000 to 11.850  
GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
PAGE WIDTH: 7.0000  
BORDER SIZE: 0.000  
PRINTER NAME: HP560CA  
SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0



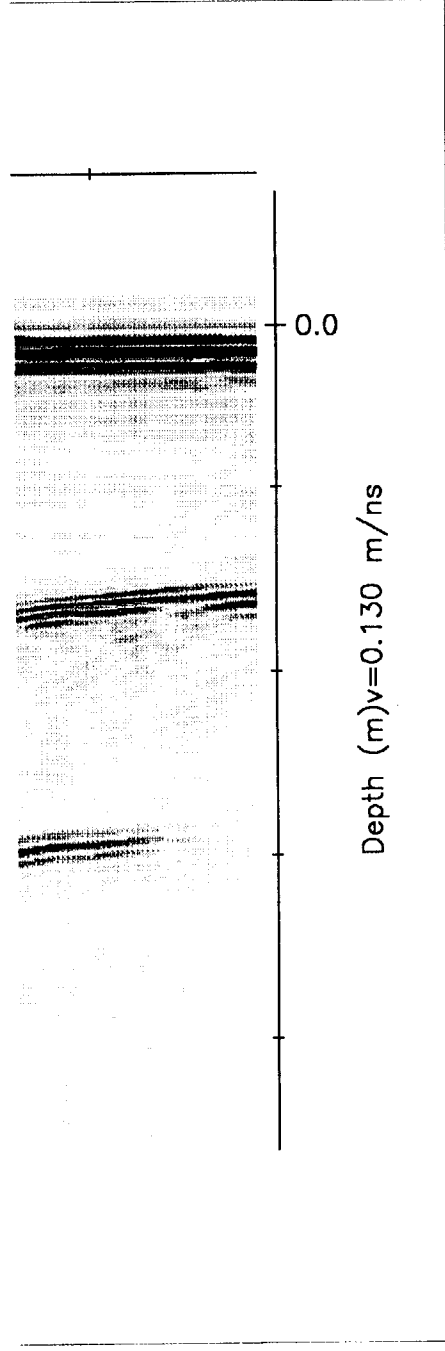
Position

5.00

10.00







pulseEKKO HEADER PARAMETERS

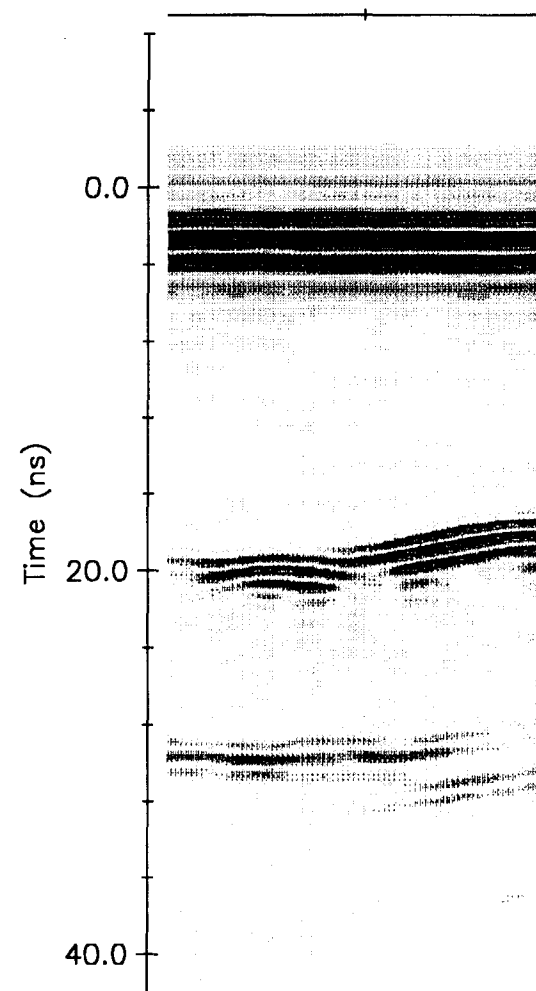
FILE = C:\EKKO42\QUAR-VB\30  
JOB# = 1  
TITLE = WHITEDOG PROPERTY SOUTH SHOWING  
TITLE = LINE 1  
DATE = 26/08/10  
NUMBER OF TRACES = 147  
NUMBER OF PTS/TRC = 250  
TIMEZERO AT POINT = 42  
TOTAL TIME WINDOW = 50  
STARTING POSITION = 0.000  
FINAL POSITION = 7.300  
STEP SIZE USED = 0.050  
POSITION UNITS = metres  
NOMINAL FREQUENCY = 450.00  
ANTENNA SEPARATION = 0.250  
PULSER VOLTAGE = 200  
NUMBER OF STACKS = 4  
SURVEY MODE = Reflection  
COLLECTED BY PE1000 - CON: 990227 RX: 990228  
TX: 990229 ANT: 971171/72

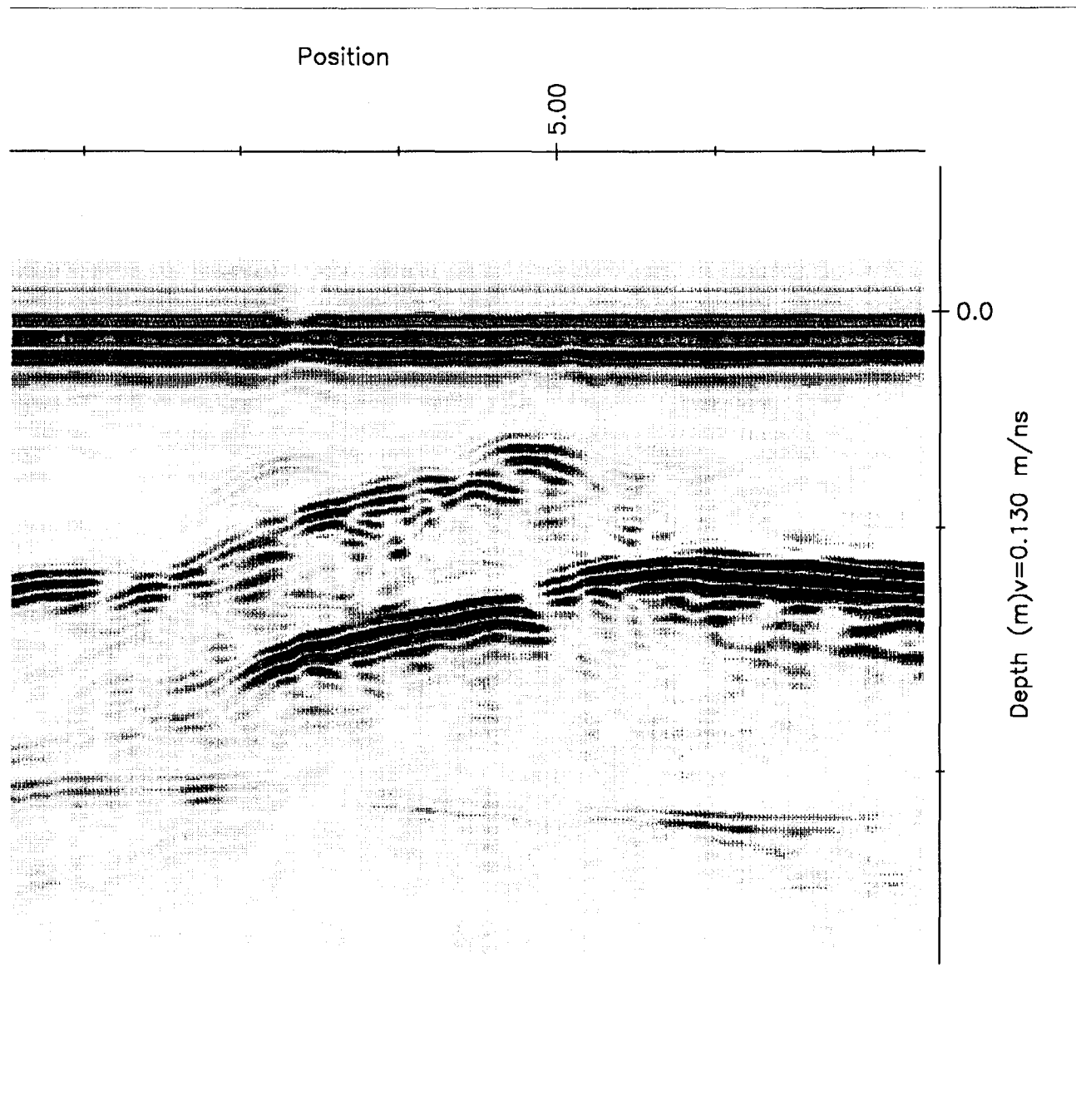
PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW  
SELECTION TIME: -8 to 42  
POSITIONS: 0.000 to 7.300  
GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
PAGE WIDTH: 7.0000  
BORDER SIZE: 0.000  
PRINTER NAME: HP560CA  
SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0





pulseEKKO HEADER PARAMETERS

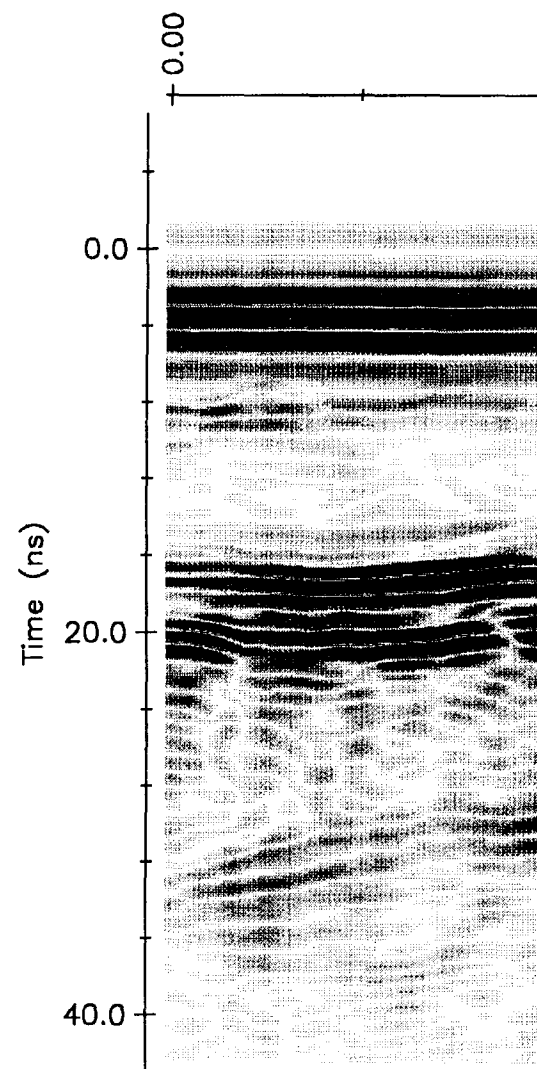
FILE = C:\EKKO42\QUAR-VB\31  
JOB# = 1  
TITLE = WHITEDOG PROPERTY SOUTH SHOWING  
TITLE = LINE J  
DATE = 26/08/10  
NUMBER OF TRACES = 166  
NUMBER OF PTS/TRC = 250  
TIMEZERO AT POINT = 37  
TOTAL TIME WINDOW = 50  
STARTING POSITION = 0.000  
FINAL POSITION = 8.300  
STEP SIZE USED = 0.050  
POSITION UNITS = metres  
NOMINAL FREQUENCY = 450.00  
ANTENNA SEPARATION = 0.250  
PULSER VOLTAGE = 200  
NUMBER OF STACKS = 4  
SURVEY MODE = Reflection  
COLLECTED BY PE1000 - CON: 990227 RX: 990228  
TX: 990229 ANT: 971171/72

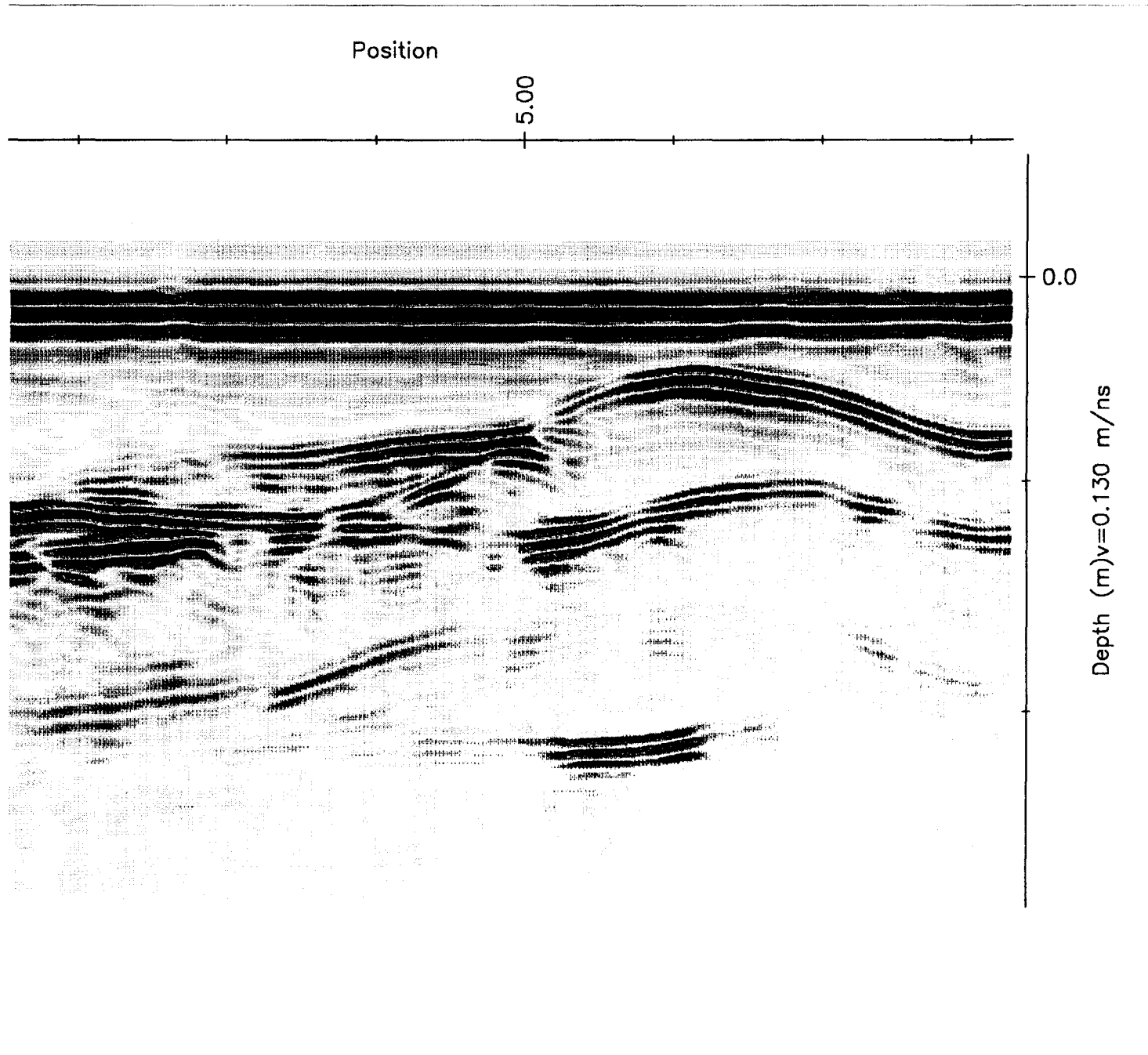
PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW  
SELECTION TIME: -7 to 43  
POSITIONS: 0.000 to 8.250  
GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
PAGE WIDTH: 7.0000  
BORDER SIZE: 0.000  
PRINTER NAME: HP560CA  
SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0





pulseEKKO HEADER PARAMETERS

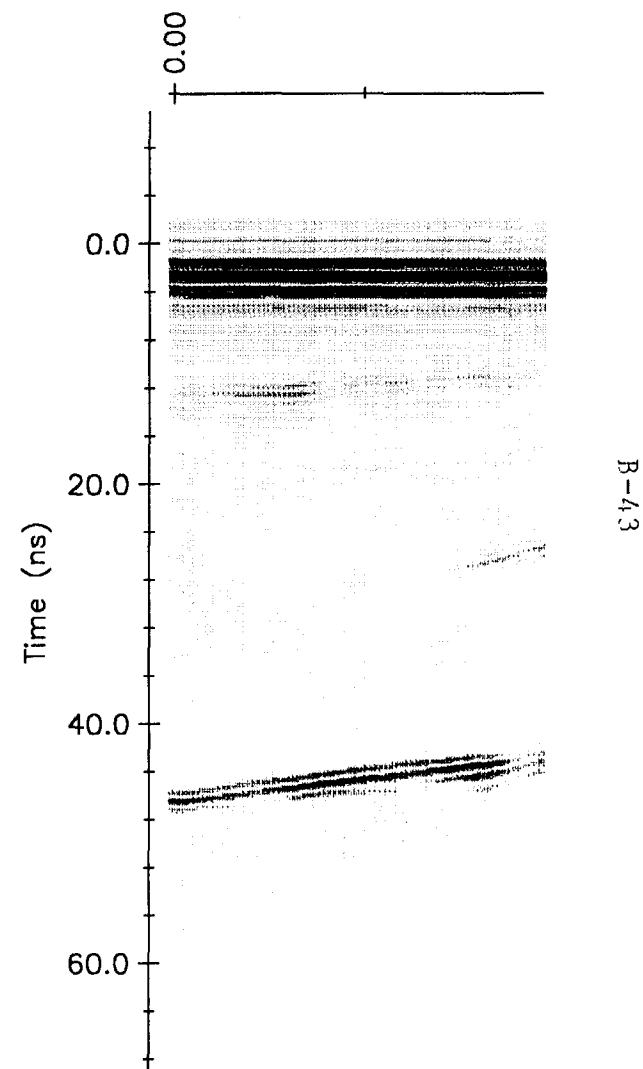
FILE = C:\EKKO42\QUAR-VB\32  
JOB# = 1  
TITLE = WHITEDOG PROPERTY SOUTH SHOWING  
TITLE = LINE k  
DATE = 26/08/10  
NUMBER OF TRACES = 387  
NUMBER OF PTS/TRC = 400  
TIMEZERO AT POINT = 57  
TOTAL TIME WINDOW = 80  
STARTING POSITION = 0.000  
FINAL POSITION = 19.300  
STEP SIZE USED = 0.050  
POSITION UNITS = metres  
NOMINAL FREQUENCY = 450.00  
ANTENNA SEPARATION = 0.250  
PULSER VOLTAGE = 200  
NUMBER OF STACKS = 4  
SURVEY MODE = Reflection  
COLLECTED BY PE1000 - CON: 990227 RX: 990228  
TX: 990229 ANT: 971171/72

PROCESSING SELECTED

FILTERS: TRACE STACKING: 3  
POINT STACKING: 1  
TRACE DIFFERENCING: N  
CORRECTION: DEWOW  
SELECTION TIME: -11 to 69  
POSITIONS: 0.000 to 19.300  
GAINS: GAIN TYPE: SEC  
MAX GAIN (Manual): 75  
ATTENUATION: 0.010  
START VALUE: 0.1000

PLOT LAYOUT PARAMETERS

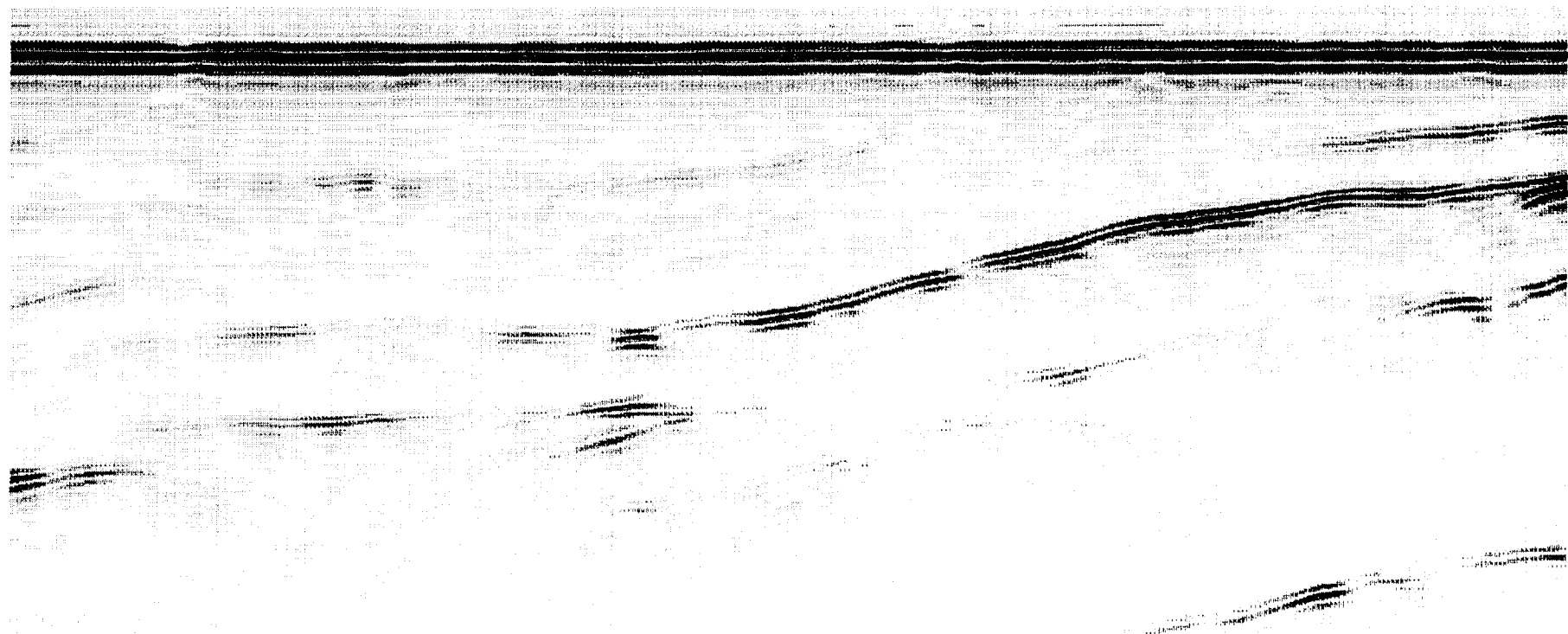
TRACE SPACING AND WIDTH: 0.0500 and 0.1000  
TRACE BOTTOM AND TOP: 1.0000 and 6.0000  
MARGIN LEFT AND RIGHT: -0.5000 and 1.0000  
PAGE WIDTH: 7.0000  
BORDER SIZE: 0.000  
PRINTER NAME: HP560CA  
SCALE BAR: Name:COLOR3 Type:L Min:-20000 Max:20000 Contour:0

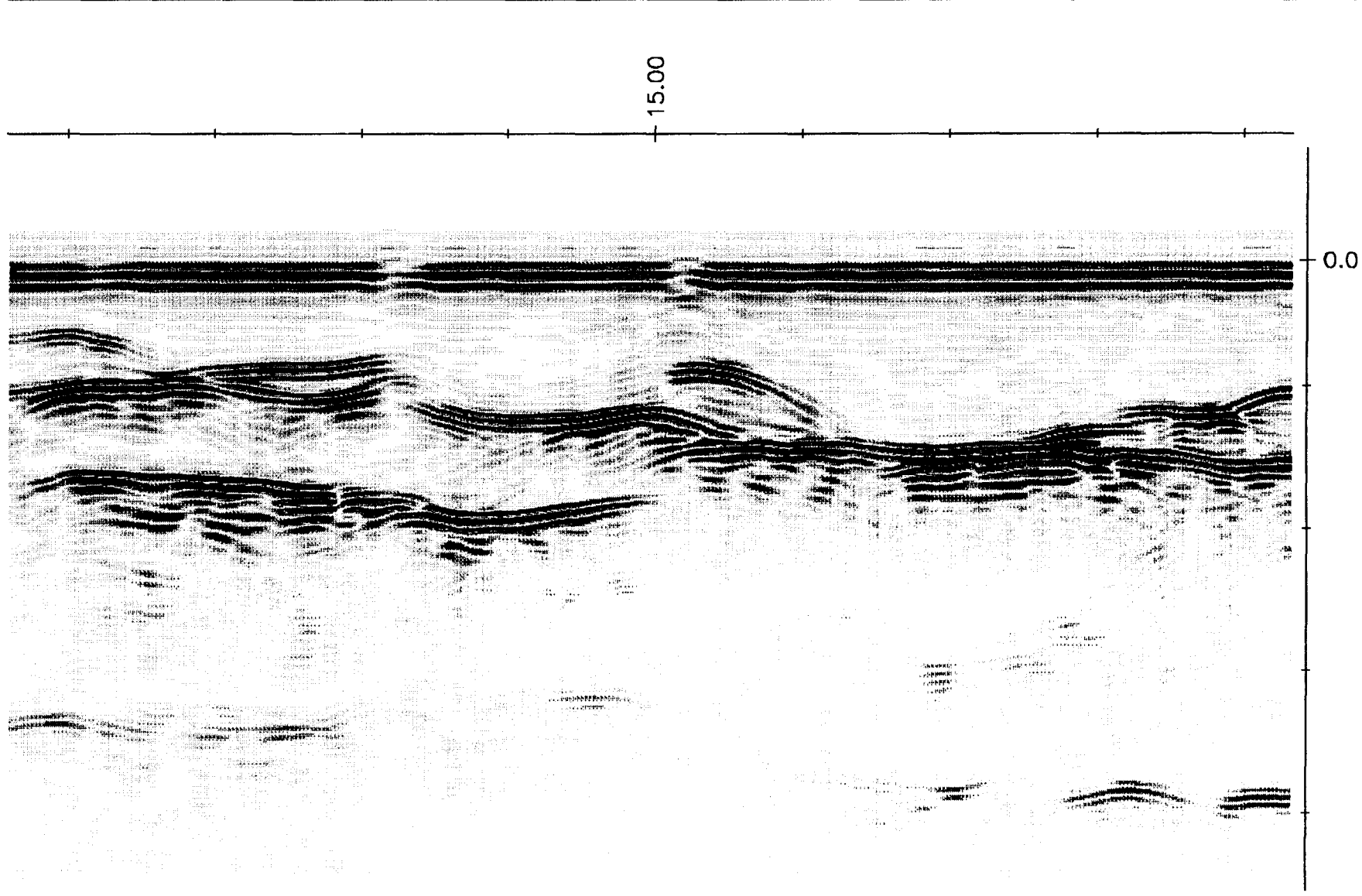


Position

5.00

10.00







.0

Depth (m) $v=0.130$  m/ns

## **APPENDIX-C Summary of Expenditures**

## APPENDIX - C

### Statement of Expenditures

#### Stripping

215 Cat Backhoe + fuel and operator 119 hours @ \$150/hr.....	\$ 17,850
Maintenance H. Leutschaf 12 hrs. @ \$25/hr.....	300
Supervision Carter Nelson 12 hrs. @ \$30/hr.....	360
Total	\$ 18,510

#### Ground Penetrating Radar

50 hours Grid Layout & Operate Radar.@ \$25/hr.....	\$ 1,250
Radar Unit 3 days @ \$275/day.....	825
Computer 5 days @ \$25/day.....	125
Report 2 days 16 hrs @ \$25/hr.....	400
Total	\$ 2,600

#### Test Quarrying

Dresser 555 Loader + fuel and operator 264.5 hrs @ \$200/hr..	\$ 52,900
Tamrock Liner 300 Drill + fuel & oper. 311 hrs. @ \$125/hr..	38,875
Tamrock Commando 100 Drill, fuel & op. 263 hrs. @ \$ 90/hr.	23,670
Lutz burner, wedges +fuel & operator 282.5 hrs. @ \$50/hr.	14,125
Maintenance-H. Leutschaf 4 days @12hrs x \$25/hr.....	1,200
Supervision -Carter Nelson 6 days x 12 hrs x \$30/hr.....	2,160
Consumables: Drill Steel 392 ft @ \$10/ft.....	3,920
Drill Bits 192 @ \$30.....	5,760
K-pipe explosives 8 cases @ \$325/case.....	2,600
Ttunkline Detonating Cord 8 cases @ \$375 ea.	3,000
Safety fuse detonators 100 @ \$2.50 each	250
Report: G. Zebruck 8 days @ \$200/day.....	1,600
Vehicle Mileage: All vehicles. 8960 kms. @ \$ .35.....	3,136
Total	\$ 153,196

Total 2000 Work Program \$ 174,306

## **APPENDIX-D Employee Names & Addresses**

## APPENDIX D-1

### Employee Names and Addresses

Ray Hertz  
Hwy. 17 West  
Vermilion Bay, Ontario  
P0V 2V0

John Elders  
RR#1 Essex Road  
Kenora, Ontario  
P9N 3W7

Collin Wrighton  
446 3rd. St. South  
Kenora, Ontario  
P9N 1J1

Allen Anderson  
General Delivery  
Grassy Narrows I.R.  
Grassy Narrows, Ontario

Kurtis Krolyk  
P.O. Box 1  
Kenora, Ontario  
P9N 3X1

Harold Leutschaft  
RR#1  
Vermilion Bay, Ontario  
P0V 2V0

Carter Nelson  
P.O. Box 178  
Vermilion Bay, Ontario  
P0V 2V0

George Zebruck  
RR#1 Airport Rd.  
Kenora, Ontario  
P9N 3W7

## Work Report Summary

Transaction No: W0310.00360

**Status:** APPROVED

Recording Date: 2003-MAR-07

**Work Done from:** 2002-AUG-18

Approval Date: 2003-MAY-27

to: 2003-MAR-04

**Client(s):**

304244 NELSON GRANITE LIMITED

**Survey Type(s):**

INDUS

### Work Report Details:

Claim#	Perform	Perform Approve	Applied	Applied Approve	Assign	Assign Approve	Reserve	Reserve Approve	Due Date
K 1220638	\$0	\$0	\$1,893	\$1,893	\$0	0	\$0	\$0	2009-AUG-21
K 1220639	\$0	\$0	\$2,000	\$2,000	\$0	0	\$0	\$0	2009-AUG-21
K 1220640	\$0	\$0	\$4,000	\$4,000	\$0	0	\$0	\$0	2009-AUG-21
K 1221254	\$174,306	\$174,306	\$2,000	\$2,000	\$10,293	10,293	\$162,013	\$162,013	2009-FEB-14
K 1246480	\$0	\$0	\$2,400	\$2,400	\$0	0	\$0	\$0	2009-DEC-03
	\$174,306	\$174,306	\$12,293	\$12,293	\$10,293	\$10,293	\$162,013	\$162,013	

**External Credits:** \$0

**Reserve:**

\$162,013 Reserve of Work Report#: W0310.00360

\$162,013 Total Remaining

Status of claim is based on information currently on record.



52L02NW2002 2.25121 GOSHAWK LAKE

900

Date: 2003-MAY-28

GEOSCIENCE ASSESSMENT OFFICE  
933 RAMSEY LAKE ROAD, 6th FLOOR  
SUDBURY, ONTARIO  
P3E 6B5

NELSON GRANITE LIMITED  
P.O. BOX 178  
HWY 17 WEST  
VERMILION BAY, ONTARIO  
P0V 2V0 CANADA

Tel: (888) 415-9845  
Fax: (877) 670-1555

**Submission Number:** 2.25121  
**Transaction Number(s):** W0310.00360

Dear Sir or Madam

**Subject: Approval of Assessment Work**

We have approved your Assessment Work Submission with the above noted Transaction Number(s). The attached Work Report Summary indicates the results of the approval.

At the discretion of the Ministry, the assessment work performed on the mining lands noted in this work report may be subject to inspection and/or investigation at any time.

If you have any question regarding this correspondence, please contact BRUCE GATES by email at [bruce.gates@ndm.gov.on.ca](mailto:bruce.gates@ndm.gov.on.ca) or by phone at (705) 670-5856.

Yours Sincerely,



Sheila Lessard  
Acting Senior Manager, Mining Lands Section

**Cc:** Resident Geologist

George Richard Zebruck  
(Agent)

Nelson Granite Limited  
(Assessment Office)

Assessment File Library

Nelson Granite Limited  
(Claim Holder)



52L02NW2002 2.25121 GOSHAWK LAKE

200

ONTARIO  
CANADA

MINISTRY OF NORTHERN  
DEVELOPMENT AND MINES  
PROVINCIAL MINING  
RECORDERS' OFFICE

Mining Land Tenure  
Map

Date / Time of Issue: Wed May 28 09:26:40 EDT 2003

TOWNSHIP / AREA  
GOSHAWK LAKE AR

PLAN  
G-2620

#### ADMINISTRATIVE DISTRICTS / DIVISIONS

Mining Division  
Land Titles/Registry Division  
Ministry of Natural Resources District

Kenora  
KENORA  
KENORA

#### TOPOGRAPHIC

- Administrative Boundaries
- Township
- Concession, Lot
- Provincial Park
- Indian Reserve
- Cliff, Pit & Pile
- Contour
- Mine Shaft
- Mine Headframe
- Railway
- Road
- Trail
- Natural Gas Pipeline
- Utilities
- Tower

#### Land Tenure

##### Freehold Patent

- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only

##### Leasehold Patent

- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only

##### Licence of Occupation

- Use Not Specified
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only
- Land Use Permit
- Order In Council (Not open for staking)
- Water Power Lease Agreement

- Mining Claim
- Fled Only Mining Claims

#### LAND TENURE WITHDRAWALS

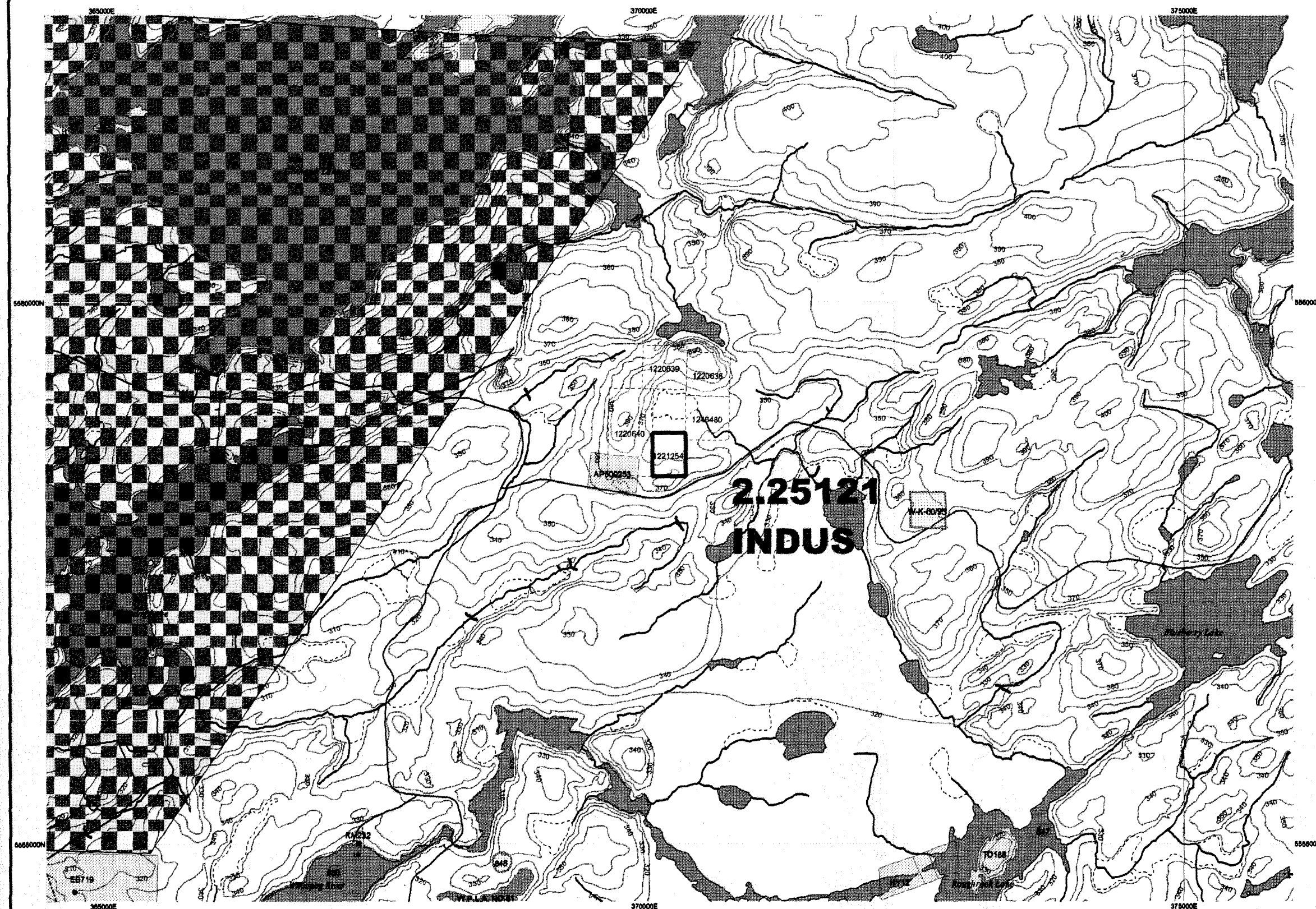
- Areas Withdrawn from Disposition
- Mining Act Withdrawal Types
- Surface And Mining Rights Withdraw
- Surface Rights Only Withdraw
- Mining Rights Only Withdraw
- Order In Council Withdrawal Types
- Surface And Mining Rights Withdraw
- Surface Rights Only Withdraw
- Mining Rights Only Withdraw

#### IMPORTANT NOTICE



#### LAND TENURE WITHDRAWAL DESCRIPTIONS

Identifier	Type	Date	Description
714	Wam	Jan 1, 2001	W.P.L.A. No. 50
765	Wam	Jan 1, 2001	FLOODING ELEVATION: 1042 FT & 1049 FT FILE: 34179 (VOL.2)
798	Wam	Jan 1, 2001	FLOODING H.E.P.C. ELEVATION: 1049 FT FILE: 34179 PLAN: U2-1
847	Wam	Jan 1, 2001	W.P.L.A. NO.51
848	Wam	Jan 1, 2001	GRANULAR MATERIAL QUARRY PERMIT FILE 12999
850	Wam	Jan 1, 2001	FLOODING ELEVATION: 1042 FT FILE: 4922 & 12999 PLAN: L28-4
864	Wam	Jan 1, 2001	FLOODING ELEVATION: 1042 FT FILE: 34179 VOL.2 12999 & 6934
865	Wam	Jan 1, 2001	FLOODING CONTOUR 1042 FT IS FROM HEAD OF WHITEDOG FA
871	Wam	Jan 1, 2001	QUARRY PERMIT APPLICATION OCT.07/98
W-K-60/95	Wam	Jun 25, 1995	SECT.35 W-K-60/95 JULY 25/95 S&M 195150



UTM Zone 15  
5000m grid

Those wishing to stake mining claims should consult with the Provincial Mining Recorders' Office of the Ministry of Northern Development and Mines for additional information on the status of the lands shown hereon. This map is not intended for navigational, survey, or land title determination purposes as the information shown on this map is compiled from various sources. Completeness and accuracy are not guaranteed. Additional information may also be obtained through the local Land Titles or Registry Office, or the Ministry of Natural Resources.

The information shown is derived from digital data available in the Provincial Mining Recorders' Office at the time of downloading from the Ministry of Northern Development and Mines web site.

#### General Information and Limitations

Contact Information:  
Provincial Mining Recorders' Office  
Wilket Green Mill Centre 933 Ramsey Lake Road  
Sudbury ON P3E 8B5  
Home Page: [www.mndm.gov.on.ca/MNDMMINES/LANDS/mimnmpge.htm](http://www.mndm.gov.on.ca/MNDMMINES/LANDS/mimnmpge.htm)

Toll Free  
Tel: 1 (888) 415-9845 ext 577  
Fax: 1 (877) 670-1444

Map Datum: NAD 83  
Projection: UTM (8 degree)  
Topographic Data Source: Land Information Ontario  
Mining Land Tenure Source: Provincial Mining Recorders' Office

This map may not show unregistered land tenure and interests in land including certain patents, leases, easements, right of ways, flooding rights, licences, or other forms of disposition of rights and interest from the Crown. Also certain land tenure and land uses that restrict or prohibit free entry to stake mining claims may not be illustrated.